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Neurosensitivity in Business:

Vantage Sensitivity as a Competitive Advantage?

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List of Abbreviations

AMOS	Analysis of Moment Structures (Software)
AES	Aesthetic Sensitivity
CFA	Confirmatory Factor Analysis
cf.	confer (compare)
CFI	Comparative Fit Index
CI	Confidence Interval
COR	Conservation of Resources
EOE	Ease of Excitation
e.g.	exempli gratia (for example)
Ed.(s)	Editor(s)
et al.	et alia (and others)
f./ff.	and following page/and following pages
HSP	Highly Sensitive Person
HSPS	Highly Sensitive Person Scale
GFI	Goodness of Fit Index
i.e.	id est (that is)
LST	Low Sensory Threshold
N	Sample Size
n.s.	Not significant
OCB	Organizational Citizenship Behavior
OCBI	Organizational Citizenship Behavior toward Individuals
p	p-value
p./pp.	Page/pages

RMSEA	Root Mean Squared Error Approximation
SD	Standard Deviation
SPSS	Statistical Package for the Social Sciences (Software)
vs.	versus (against, in contrast to)

1 Overall Introduction

This introduction summarizes the overarching thoughts that underpin the present dissertation, which introduces neurosensitivity into management research. Neurosensitivity is defined as some sort of perceptive ability; namely, the "ability to register and process environmental stimuli" (Pluess, 2015; as cited by Greven et al., 2019: 288), which is based on the sensitivity of the nervous system (Bridges, 2018; Pluess, 2015). While all individuals are more or less neurosensitive, a minority of so called highly (neuro-)sensitive persons have heightened neurosensitivity (Lionetti, Aron, Aron, Burns, Jagiellowicz, & Pluess, 2018). There are, however, two sides to every coin. On the one hand, neurosensitivity is linked with greater empathy (Acevedo, Aron, Aron, Sangster, Collins, & Brown, 2014) and creativity (Bridges & Schendan, 2019b). On the other hand, neurosensitivity is also linked with greater susceptibility to stress and burnout (Andresen, Goldmann, & Volodina, 2018; Evers, Rasche, & Schabracq, 2008).

1.1 Motivation

Since neurosensitivity is defined as a perceptive ability (Pluess, 2015), one can imagine the following metaphor: On the one hand, heightened neurosensitivity can act as the source of high-resolution data concerning the environment. On the other hand, the generation of this high-resolution data may come at greater biological cost. This has various implications from a

management perspective, . The question, then, is how can the bright side of this data generation, such as greater empathy and creativity (Acevedo et al., 2014; Bridges & Schendan, 2019b), be maximized? How can the dark side of this data generation, which includes greater susceptibility to stress (Andresen et al., 2018; Evers et al., 2008), be minimized? How can organizations detect these sources of high-resolution data? How can organizations consciously use and leverage this high-resolution data? In which organizational circumstances is this high-resolution data favorable and in which is it a hindrance? One major question for practitioners is whether diverse data should be generated in order to achieve optimal organizational results or whether the generation of high-resolution data leads to superior organizational results per se? The present dissertation specifically examines some of these questions in. Based on these examinations, the aforementioned questions will be discussed in the overall conclusion at the end of this dissertation.

The present dissertation is highly relevant for both theory and practice. From a theoretical perspective, sensitivity research has gained increasing momentum. For instance, recently, eleven of the leading sensitivity scholars have published an interdisciplinary literature review that emphasizes the biobehavioral implications of neurosensitivity (see Greven et al., 2019). However, with only two studies (cf. Andresen et al., 2018; Harms, Hatak, & Chang, 2019), management research is lagging behind these recent advances in psychology, biology, genetics, and neurology. Furthermore, the two existing sensitivity studies in the management context only examined psychological states. On the one hand, Andresen et al. (2018) have linked neurosensitivity with work stress and turnover intention. On the other hand, Harms et al. (2019) linked neurosensitivity with entrepreneurial intention. From a practical perspective, heightened sensitivity “has gained substantial popularity in the public and media, with programs being developed and professionals trained to coach and support highly sensitive employees, leaders, parents and children” (Greven et al., 2019: 288). However, since management research

is lagging behind, such practical efforts regarding highly sensitive employees and leaders are, for the most part, insufficiently backed by scientific evidence.

1.2 Theoretical Foundation

1.2.1 Neurosensitivity

Sensitivity research is still in its infancy, meaning that the conceptual-theoretical understandings of this "fundamental trait" (Pluess, 2015: 138) are still rather vague. Nevertheless, a solid understanding of neurosensitivity is a key precondition for the effective introduction of neurosensitivity into management research.

In the present dissertation, neurosensitivity is defined as "the ability to register and process environmental stimuli" (Pluess, 2015; as cited by Greven et al., 2019: 288). Environmental stimuli "are broadly defined and include any salient conditioned or unconditioned internal or external stimuli, including physical environments (e.g. food, caffeine intake), social environments (e.g. childhood experiences, other people's moods, crowds), sensory environments (e.g. auditory, visual, tactile, olfactory), and internal events (e.g. thoughts, feelings, bodily sensations such as hunger, pain)" (Greven et al., 2019: 289).

There are various constructs that refer to inter-individual sensitivity differences. Accordingly, using the umbrella construct of environmental sensitivity, Pluess (2015) integrated the three research streams regarding sensitivity differences among adults (i.e., sensory-processing sensitivity; Aron & Aron, 1997), children (i.e., differential susceptibility & biological sensitivity (i.e., differential susceptibility & biological sensitivity to context; Belsky & Pluess, 2009; Boyce & Ellis, 2005), and animals (i.e., plasticity; Stamps, 2016). Whereas environmental sensitivity refers to the observation that humans, as well as more than 100 non-human species, differ in their levels of responsiveness to the environment, neurosensitivity

refers to the sensitivity of the central nervous system, which is the underlying mechanism of environmental sensitivity (Pluess, 2015). Based on at least four reasons, the present dissertation intentionally uses the term ‘neurosensitivity’ instead of ‘environmental sensitivity’. First, the term ‘environmental sensitivity’ misleadingly implies that sensitivity is directed primarily toward external stimuli. However, thanks to a recent high-quality review, we know that sensitivity is directed toward both external and internal stimuli (Greven et al., 2019). Second, using a term that (management) practitioners can also intuitively comprehend is key. In this context, thanks to a recent neurological review, we know that sensitivity differences have neurological correlates (Acevedo et al., 2018). Consequently, the term ‘neurosensitivity’ intuitively refers to a neurological disposition. Third, the view that neurosensitivity is a neurological disposition is in line with the neurodiversity perspective. In this context, thanks to a recent management study, a first link between neurosensitivity and neurodiversity has been made (Harms et al., 2019). Such a neurodiversity perspective on neurosensitivity is much more constructive than a psychopathological perspective – especially as it relates to vulnerable sensitivity. Fourth, in order to leverage the great potential of sensitivity (and vantage sensitivity in particular) for management practitioners, the term ‘neurosensitivity’ builds a powerful bridge to the neurodiversity perspective, which has already found its way into human resource management and diversity management of large companies, such as Microsoft and SAP (Austin & Pisano, 2017).

According to recent sensitivity research (Acevedo, Aron, Pospos, & Jessen, 2018; Homberg, Schubert, Asan, & Aron, 2016), there are four sensitivity facets: (1) increased awareness of environmental subtleties, (2) deeper information processing, (3) increased empathy, and (4) increased susceptibility to overstimulation. As regards the first sensitivity facet, the neurological study by Acevedo et al. (2014) shows an increased activity of the insula in highly sensitive persons. This insula is the area of the brain related to consciousness (Craig,

2009). As for the second sensitivity facet, the same neurological study reveals increased activity of the mirror neuron system in highly sensitive persons; this is the area of the brain related to empathy (Baird, Scheffer, & Wilson, 2011). Regarding the third sensitivity facet, in both a theoretical study (Bridges & Schendan, 2019a) and an empirical study (Bridges & Schendan, 2019b), neurosensitivity is associated with increased creativity. Regarding the fourth sensitivity facet, neurosensitivity is related to increased stress (Andresen et al., 2018; Evers et al., 2008). Accordingly, whereas the three first sensitivity facets can be understood as referring to the bright side of sensitivity, the fourth facet can be seen as referring to the dark side of sensitivity.

Whether the bright side (i.e., increased awareness, increased empathy, and deeper information processing) or the dark side of sensitivity is predominant (i.e., increased susceptibility to overstimulation), is influenced – amongst other factors – by childhood experiences (Slagt, Dubas, Deković, & van Aken, 2016). In this context, Pluess (2015) differentiates between various different sensitivity types.

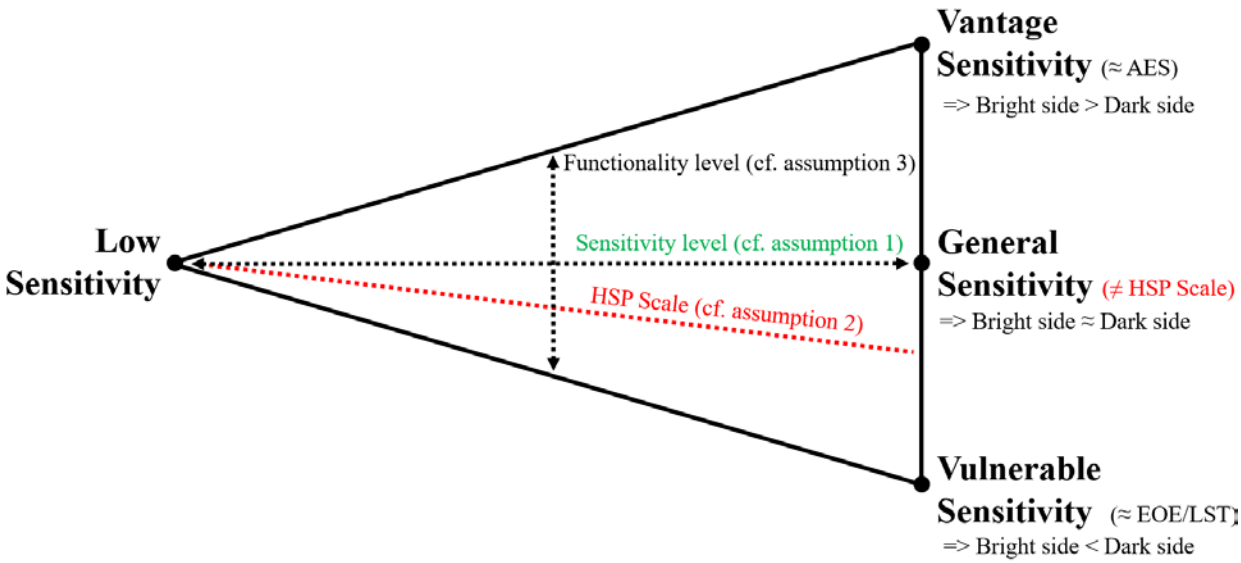
Many sensitivity scholars (and practitioners) implicitly assume that there is such a thing as THE highly sensitive person. However, some sensitivity scholars have begun to differentiate between "healthy and unhealthy individuals with high" sensitivity (Bratholm Wyller et al., 2018; as cited by Greven et al., 2019: 300) or between "functional vs. dysfunctional" sensitivity (Bakker & Moulding, 2012: 342). For instance, a meta-analysis of 84 studies by Slagt, Dubas, Deković, and van Aken (2016) remarkably reveals that, whereas highly sensitive children that experienced favorable parenting (i.e., warmth and positive control) display the best educational outcomes (e.g., grades or teacher-rated social competence), highly sensitive children that experienced unfavorable parenting (i.e., hostility and negative control) have the worst educational outcomes. In this context, Pluess (2015) proposes four sensitivity types. Accordingly, in the absence of sensitivity genes, an individuals' sensitivity level will be low regardless of childhood history, thus shaping low sensitivity (Moore & Depue, 2016). In the

presence of sensitivity genes, early environment will shape one of the three following sensitivity types. With favorable early environments, sensitivity genes trigger vantage sensitivity, whereby the bright side of neurosensitivity is predominant (Moore & Depue, 2016; Pluess & Belsky, 2013). When the early environment is neutral, sensitivity genes trigger general sensitivity, whereby the bright and the dark side of neurosensitivity are balanced (cf. differential susceptibility; Belsky & Pluess, 2009; Moore & Depue, 2016). When the early environment is unfavorable, sensitivity genes trigger vulnerability/vulnerable sensitivity, whereby the dark side of neurosensitivity is predominant (cf. diathesis-stress; Belsky & Pluess, 2009; Moore & Depue, 2016).

Regarding the operationalization of neurosensitivity, there is a self-report measure with 27 items called the Highly Sensitive Person (HSP) Scale (Aron & Aron, 1997). Although this scale was introduced as being unidimensional, scholars have mostly reported either a three-factor (cf. e.g., Smolewska, McCabe, & Woody, 2006; Sobocko & Zelenski, 2015) or a two-factor solution (c.f. e.g., Evans & Rothbart, 2008; Tillmann, El Matany, & Duttweiler, 2018). Most recently, Bridges and Schendan (2019b) integrated the two solutions by claiming that two factors of the three-factor solution, namely: ease of excitation (EOE) and low sensory threshold (LST), actually refer to one factor of the two-factor solution (i.e., negative affect). On the other hand, they suggest that the remaining factor of the three-factor solutions, which is aesthetic sensitivity (AES), is equal to the second factor of the two-factor solution (i.e., orienting sensitivity). Consistent with recent reflections by various sensitivity scholars (cf. e.g., Bridges & Schendan, 2019b; Homberg et al., 2016), it can be claimed that the first factor actually refers to vulnerable sensitivity (i.e., EOE/LST) and that the second factor actually refers to vantage sensitivity (i.e., AES). However, since two thirds of the total HSP Scale is based on EOE/LST-items, the HSP Scale is biased toward vulnerable sensitivity and, as such, does not operationalize general sensitivity. Figure 1 provides an overview of the four sensitivity types,

their operationalization, and the three basic assumptions of current sensitivity research, which are discussed in the following sections.

Figure 1: Overview of the basic assumptions of sensitivity research



Sensitivity scholars implicitly hold three basic assumptions regarding neurosensitivity. First, individuals differ in their levels of sensitivity. Second, the Highly Sensitive Person (HSP) Scale operationalizes an individual's specific sensitivity level. Third, some sensitivity scholars have begun to emphasize that – besides an individual's sensitivity level – one should also differentiate between an individual's level of functioning.

Regarding the first basic assumption, Aron and Aron's (1997) seminal work has introduced (sensory-processing) sensitivity into psychological research, emphasizing that active exploration and quiet vigilance represent two distinct survival strategies among human and many non-human species, whereby quiet vigilance represents the more sensitive strategy. Accordingly, Aron and Aron's (1997) foundational study implicitly assumed that individuals differ in their levels of sensitivity, which is a basic assumption is still held by most sensitivity

scholars (cf. e.g., Greven et al., 2019; Pluess, 2015), including the author of the present dissertation.

As to the second basic assumption, various scholars (e.g., Evans & Rothbart, 2008; Smolewska et al., 2006) challenge Aron and Aron's (1997) claim that the HSP Scale is unidimensional. In this context, Evans & Rothbart even emphasize "that conceptual analysis of items led us to question the extent to which their theory of sensitivity is linked with the content of their self-report measure. I a priori designated that 18 of the 27 items included primarily negative affect" (2008: 110). In turn, similar to Pluess' vulnerability sensitivity type, Homberg, Schubert, Asan, and Aron (2016) propose that negative affect is more pronounced in adulthood if highly sensitive persons experienced an adverse childhood environment. Consequently, since at least two thirds of the HSP Scale items operationalize negative affect, the whole HSP Scale is strongly biased toward vulnerable sensitivity. However, sensitivity research implicitly assumes that the HSP Scale operationalizes heightened sensitivity to both negative and positive influences (cf. Greven et al., 2019) and, thus, general sensitivity. Accordingly, the HSP Scale needs to be modified to truly operationalize general sensitivity, which the present dissertation has done (see study 2).

With regard to the third basic assumption, some sensitivity scholars differentiate between "healthy and unhealthy individuals with high" sensitivity (Bratholm Wyller et al., 2018; as cited by Greven et al., 2019: 300) or between "functional vs. dysfunctional" sensitivity (Bakker & Moulding, 2012: 342). Therefore, in the context of Pluess' (2015) sensitivity types, vantage-sensitive persons can be seen as the most healthy and/or functional highly sensitive persons, while vulnerable-sensitive persons can be seen as the most unhealthy and/or dysfunctional highly sensitive persons. However, with the exception of the dissertation by Tillmann (2019), there has not yet been any study that quantitatively operationalized a

differentiation with sensitivity types, which the present dissertation has done (see studies 2 & 3).

The three studies of the present dissertation have different relations to the above outlined assumptions of current sensitivity research. The conceptual-theoretical study 1 exclusively follows the first assumption. Specifically, study 1 assumes that human and many non-human individuals vary in their sensitivity levels. Neither the HSP Scale nor Pluess' sensitivity types are explicitly considered, because the HSP Scale is not explicitly needed in a conceptual-theoretical study and because Pluess' sensitivity types are not (yet) explicitly used in current sensitivity research. Study 2 considers all three basic assumptions. Consequently, the HSP Scale is modified such that the total score of the scale operationalizes general sensitivity. Although the results confirm the specific sensitivity types and their expected outcomes, which might substantially contribute to sensitivity research, the disadvantage of this approach is that it uses a modified and, thus, non-validated scale. Therefore, study 3 solely follows the third assumption by exclusively considering vantage sensitivity and vulnerable sensitivity. Because assumptions 1 and 2 are neglected, the total HSP Scale by Aron and Aron (1997) does not need to be modified, thereby providing a self-report measure of neurosensitivity that has been validated (cf. e.g., Konrad & Herzberg, 2017; Smolewska et al., 2006).

1.2.2 Conservation of Resources Theory

The present dissertation is based on the conservation of resources (COR) theory, which starts with the basic tenet "that individuals strive to obtain, retain, foster, and protect" resources (Hobfoll, Halbesleben, Neveu, & Westman, 2018: 104). Resources are defined as "those objects, personal characteristics, conditions, or energies that are valued by the individual or that serve as a means for attainment of these objects, personal characteristics, conditions, or energies" (Hobfoll, 1989: 5). COR theory suggests that individuals are motivated to conserve their present resources and invest their resources to acquire future resources (Halbesleben,

Neveu, Paustian-Underdahl, & Westman, 2014). For the present dissertation, COR theory's corollaries 1-3 and crossover model are especially important.

Corollary 1 of COR theory suggests that those individuals "with greater resources are less vulnerable to resource loss and more capable of resource gain. Conversely, individuals […] who lack resources are more vulnerable to resource loss and less capable of resource gain" (Hobfoll et al., 2018: 104). Accordingly, corollary 2 of COR theory states that initial resource loss entails future loss (Hobfoll, 2001), which can lead to resource loss spirals (Hobfoll et al., 2018). In this context, vulnerable sensitivity can be understood as a resource loss spiral that is initiated in childhood. In turn, corollary 3 of COR theory states that initial resource gain induces further gain (Hobfoll, 2001), which can lead to resource gain spirals (Hobfoll et al., 2018). In this context, vantage sensitivity can be understood as a resource gain spiral that is initiated in childhood.

Regarding COR theory's corollaries 1-3, organizational scholars argue that individuals' greater resources are positively related to various business-relevant outcomes. For instance, whereas increased psychological wellbeing is positively related to job performance, emotional exhaustion is negatively related to job performance (Wright & Hobfoll, 2004). Furthermore, increased resource levels are positively related to the use of job-related coping strategies, such as working harder or seeking advice and assistance (Ito & Brotheridge, 2003). Moreover, being rested in the morning and, thus, starting the day with increased resource levels is positively associated with both task performance and organizational citizenship behavior (Binnewies, Sonnentag, & Mojza, 2009). As a final example, employees can effectively buffer burnout tendencies that decrease internal resources, thereby increasing their supervisor-rated task performance through compensation strategies that enhance external resources, such as social support (Demerouti, Bakker, & Leiter, 2014).

A newly suggested dimension of COR theory is the exchange of resources via crossover, which "is a dyadic interindividual transmission of psychological states" (Hobfoll et al., 2018: 108). According to Westman (2001), empathy acts as an important crossover mechanism that transmits psychological resources between interaction partners. Accordingly, since neurosensitivity is related to empathy (Acevedo et al., 2014; Homberg et al., 2016), crossover might be an important mechanism that strongly affects the resource levels of highly sensitive employees. In this context, COR theory differentiates between negative and positive crossover (Hobfoll et al., 2018). Negative crossover describes, how stress experienced by one person affects the level of stress of another person in the same social environment (Hobfoll et al., 2018). By contrast, positive crossover refers to the interpersonal process that occurs when psychological resources or positive emotions experienced by one person affect another person (Westman, 2001).

With respect to the newly-established crossover model of COR theory, only a few studies have explicitly examined such crossover effects in work contexts. For instance, 'guanxi', which is a strong interpersonal tie between leaders and employees in Chinese work culture, serves as an important job resource for employees, which ultimately enhances the job performance (i.e., task performance and organizational citizenship behavior) of employees (Guan & Frenkel, 2019). Furthermore, in working couples, it has been found that performance self-esteem experienced by one partner after work crosses over to the other partner in the evening (Neff, Sonnentag, Niessen, & Unger, 2012).

1.3 Research Questions

Although there have already been two management studies exploring neurosensitivity in a management context, both studies only examined psychological states (i.e., work stress and turnover intention by Andresen et al., 2018; entrepreneurial intention by Harms et al., 2019).

However, specific organizational behaviors are key to management research (Medsker, Williams, & Holahan, 1994). In this context, biologists Stamps and Groothuis emphasize that neurosensitivity "could lead to major changes in the way we think about the organization of behavior" (2010: 316). Similarly, from a psychological standpoint, Pluess emphasizes that neurosensitivity "has important implications for both theoretical and applied work in any discipline that deals with human functioning" (2015: 142). Consequently, the overall goal of this dissertation is to examine neurosensitivity with business-relevant behaviors and. Therefore, the present dissertation explores the following overarching research question:

> *Overall research question: How is neurosensitivity related to business-relevant behaviors?*

One of the most fundamental purposes of management research is the examination of sources of competitive advantage and thus increased firm performance (Barney, 1991). Consequently, although a direct exploration of such firm-level outcomes is beyond the scope of the present dissertation, I consider behaviors to be 'business-relevant', when they are (indirectly) related to firm performance and, thus, a firm's competitiveness. Consequently, all three studies examine constructs that are (indirectly) related to firm performance and thus a firm's competitiveness. This dissertation uses a theoretical-conceptual study and two empirical-quantitative studies to offer answers to the following sub-questions:

> *Research question 1 (study 1): How is neurosensitivity related to organizational ambidexterity and organizational social capital?*

> *Research question 2 (study 2): How is neurosensitivity related to organizational citizenship behavior that is directed to individuals (OCBI) and to what extent do working conditions affect this relationship?*

Research question 3 (study 3): How is neurosensitivity and – more specifically – employee and leader vantage sensitivity and employee and leader vulnerable sensitivity related to employee task performance?

1.4 Overview of the Three Studies

Study 1 is a theoretical-conceptual examination that answers the question of how neurosensitivity relates to organizational ambidexterity and organizational social capital. Based on ambidexterity theory (Raisch & Birkinshaw, 2008), the study links neurosensitivity with explorative behavior and exploitative behavior, which ultimately relates to organizational ambidexterity. Moreover, based on social capital theory (Adler & Kwon, 2002), study 1 links neurosensitivity with donating social capital and capturing social capital, which ultimately relates to organizational social capital. Therefore, since organizational ambidexterity and organizational social capital are linked to firm performance and competitive advantage (Nahapiet & Ghoshal, 1998; Raisch & Birkinshaw, 2008), study 1 conceptual-theoretically explores the diversity in neurosensitivity and, based on this, neurodiversity as a potential source of competitive advantage.

Study 2 is an empirical-quantitative examination that answered the question of how neurosensitivity relates to organizational citizenship behavior directed toward individuals (OCBI) and to what extent working conditions affect this relationship. Drawing on conservation of resources (COR) theory (Hobfoll et al., 2018), the results of 322 online survey participants are examined in terms of the relationships between vantage and vulnerable sensitivity and OCBI. In addition, the potential moderation effect of working conditions (e.g., noise and room climate) on the relationship between neurosensitivity and OCBI is also explored. Since OCBI is an important part of job performance (Williams & Anderson, 1991), which, in turn, is related

to competitive advantage and firm performance (Crook, Todd, Combs, Woehr, & Ketchen, 2011), study 2 takes an empirical-quantitative approach to explore neurosensitivity as a potential source of competitive advantage.

Study 3 is an empirical-quantitative examination that answers the question of how neurosensitivity and – more specifically – employee and leader vantage sensitivity and employee and leader vulnerable sensitivity relate to employee task performance. Drawing on conservation of resources (COR) theory, the results of 217 German leader-follower dyads are examined in terms of the relationship between employee and leader vantage sensitivity and leader-rated employee task performance, as well as between employee and leader vulnerable sensitivity and employee task performance. Moreover, based on polynomial regression and response surface analysis, I examine different sensitivity type dyads and their relationship with employee task performance. Since task performance is an important part of job performance (Williams & Anderson, 1991), which, in turn, is related to competitive advantage and firm performance (Crook et al., 2011), study 3 uses an empirical-quantitative approach to explore neurosensitivity as a potential source of competitive advantage.

Figure 2 provides an overview of the three studies and the relationships between the various constructs involved. All three studies explore neurosensitivity with business-relevant behaviors that are indirectly related to firm performance and competitive advantage. Table 2 presents a more detailed overview of the three studies in this dissertation. Specifically, for each study, the table provides the title, co-authors, type of study, research question, theoretical foundation, sample, data collection, data analysis, theoretical contributions, and practical implications.

Figure 2: Relational overview of the three studies

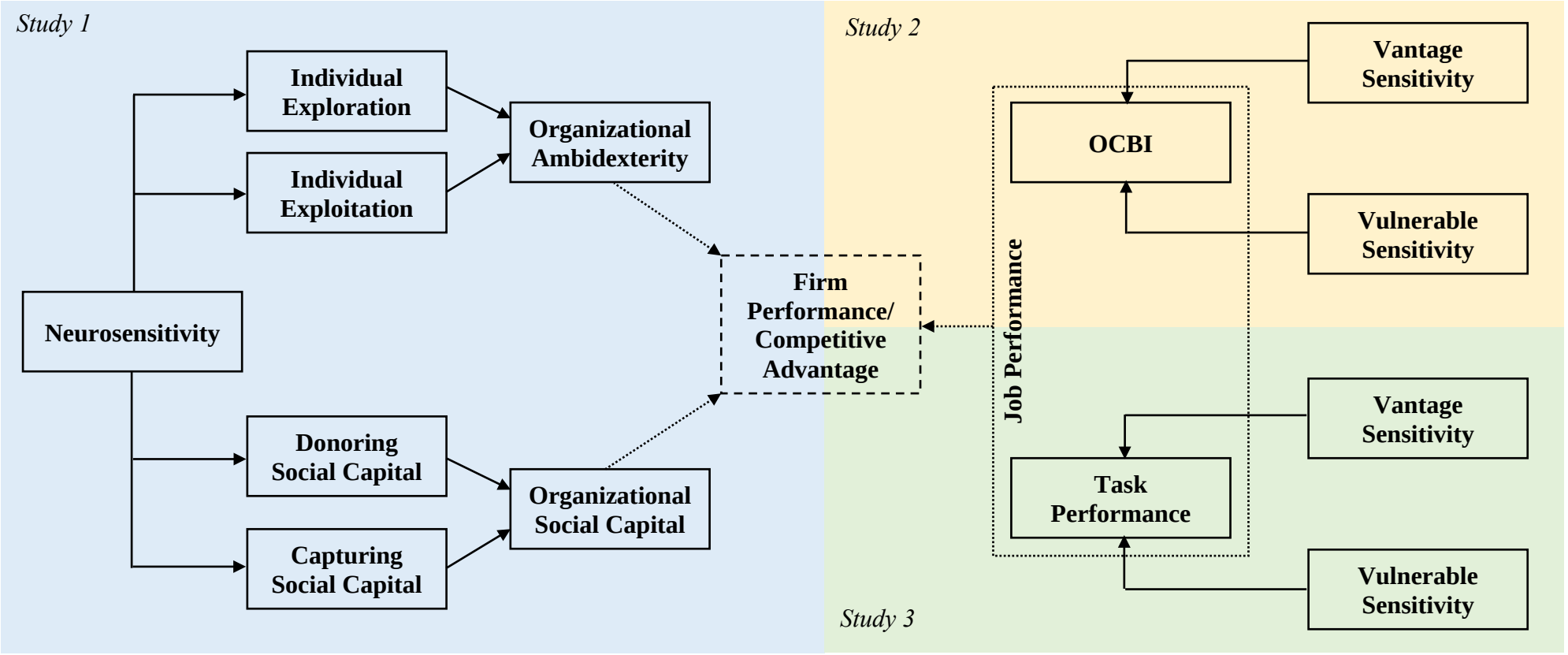


Table 1: Detailed overview of the three studies

Study	Title	Co-Authors	Type of Study	Research Question	Theoretical Foundation	Sample	Data Collection	Data Analysis	Theoretical Contributions	Practical Implications
1	Neurosensitivity, Ambidexterity, and Social Capital: Neurodiversity as a Competitive Advantage?	-	Conceptual theoretical	How is neurosensitivity related to organizational ambidexterity and organizational social capital?	Ambidexterity & Social Capital Theory	-	-	-	• Individual <> Organizational Ambidexterity • Internal <> External Social Capital	• Diversity Management • Team Composition • Recruitment
2	Neurosensitivity, Work Conditions, and Organizational Citizenship Behavior: The Vantage-Sensitive Good Citizens?	Prof. Dr. Julia de Groote & Prof. Dr. Andreas Hack	Empirical quantitative	How is neurosensitivity related to organizational citizenship behavior that is directed to individuals (OCBI) and to what extent do working conditions affect this relationship?	Conservation of Resources (COR) Theory	322 German Employees	Online Survey	Hierarchical Regression Analysis & Moderation Analysis with Hayes' PROCESS	• New, promising predictor of OCBI • Differentiated perspective on job design	• Team Composition • Recruitment • Health Management • Job Design
3	Neurosensitivity and Task Performance: The Vantage-Sensitive Top Performers?	Prof. Dr. Maike Andresen & Prof. Dr. Julia de Groote	Empirical quantitative	How is neurosensitivity and – more specifically – employee and leader vantage sensitivity and employee and leader vulnerable sensitivity related to employee task performance?	Conservation of Resources (COR) Theory	217 German Leader-Follower Dyads	Online Survey & Paper-and-Pencil	Hierarchical Regression Analysis & Polynomial Regression and Response Surface Methodology	• New, promising predictor of task performance • COR theory's resource gain and loss spirals & crossover model	• Team Composition • Recruitment • Health Management • Performance Management • Leadership

2 Study 1

Neurosensitivity, Ambidexterity, and Social Capital: Neurodiversity as a Competitive Advantage?

Abstract

Organizational ambidexterity and organizational social capital are both positively related to long-term firm performance and, thus, competitive advantage. Understanding the antecedents of these two firm-level factors is therefore critical to management research. However, the fundamental, individual-level factor of neurosensitivity has not yet been recognized as a potential microfoundation of organizational phenomena. Thus, my conceptual article argues that neurosensitivity - the ability to register and process environmental stimuli - provides a new and valuable perspective on the microfoundations of organizational ambidexterity and organizational social capital. Specifically, I propose that neurosensitivity is positively related to explorative behavior and negatively related to exploitative behavior. Accordingly, in order to achieve organizational ambidexterity, it can be expected that firms require a workforce with a wide range of sensitivity levels. Moreover, I suggest that neurosensitivity is positively related to donating social capital and negatively to capturing social capital. Therefore, as with organizational ambidexterity, in order to achieve high levels of organizational social capital, it can be expected that firms need a neurosensitivity-diverse workforce, highlighting the proposition that neurodiversity could provide a source of competitive advantage. Finally, theoretical and practical implications, as well as future research directions, are discussed.

2.1 Introduction

Whereas sensitive honey bees collect more sucrose when environmental conditions provide few rewarding flowers, insensitive honey bees gather more sucrose when conditions offer many rewarding flowers (Burns & Dyer, 2008). Sensitive ants represent docile brood caretakers who often stay within the colony, while insensitive ants represent aggressive patrollers who often leave the colony (Chapman, Thain, Coughlin, & Hughes, 2011). In this conceptual article, I will explore how these two examples offered by the animal kingdom are related to organizational ambidexterity and organizational social capital.

Organizational ambidexterity is a firm's ability "to simultaneously explore and exploit" (O'Reilly & Tushman, 2008: 199). Organizational social capital is a firm's goodwill, which is generated by internal and external social relations (Adler & Kwon, 2002). Organizational ambidexterity and organizational social capital are both positively related to firm performance (cf. e.g., Collins & Clark, 2003; Gibson & Birkinshaw, 2004; He & Wong, 2004; Pennings, Lee, & van Witteloostuijn, 1998) and both are considered to be essential to a firm's long-term success (Nahapiet & Ghoshal, 1998; Raisch, Birkinshaw, Probst, & Tushman, 2009). Therefore, understanding the antecedents of these two firm-level factors is critical to management research. In this context, an increasing number of management scholars have started to explore the microfoundations of firm-level factors (Felin, Foss, & Ployhart, 2015). This microfoundations movement understands firm-level factors as being largely shaped by the emergence and aggregation of individual-level factors (cf. e.g., Barney & Felin, 2013; Felin et al., 2015; Foss, 2011). However, there is one fundamental individual-level factor that has not yet been recognized by the microfoundations movement.

Adults, children, and animals differ in their (nervous-system-based) sensitivity to the environment (cf. e.g., Aron & Aron, 1997; Belsky & Pluess, 2009; Boyce & Ellis, 2005; Braem,

Asher, Furrer, Lechner, Würbel, & Melotti, 2017; Stamps, 2016). Accordingly, based on Pluess, neurosensitivity is “a fundamental trait found in most organisms”, and it refers to “the ability to register, process, and respond to external factors” (2015: 138). Though every human being has this ability to some extent, a minority of so-called highly sensitive persons show heightened neurosensitivity (Lionetti et al., 2018). Heightened neurosensitivity, which is considered to be a survival strategy (Aron & Aron, 1997; Wolf, van Doorn, & Weissing, 2008), affects various outcomes, which often come with certain trade-offs. For instance, whereas highly sensitive persons perform better than non-highly sensitive persons on a visual detection task, their more accurate and faster performance is also accompanied by greater stress after completing the test (Gerstenberg, 2012). Following Harms, Hatak, and Chang (2019), neurosensitivity fits the emerging neurodiversity perspective, which “regards atypical neurological development as a normal human difference” (Jaarsma & Welin, 2012: 20). In this context, neurodiversity has even been proposed as a source of competitive advantage that enhances innovation (Austin & Pisano, 2017).

As neurosensitivity has only recently been integrated research on sensitivity differences among adults, children, and animals (see Pluess, 2015), management research has not yet recognized the broad and deep implications of this fundamental trait. Thus far, only two studies have examined neurosensitivity in the management context (Andresen et al., 2018; Harms et al., 2019) . However, biologists Stamps and Groothuis emphasize that neurosensitivity “could lead to major changes in the way we think about the organization of behavior” (2010: 316). Similarly, from a psychological standpoint, Pluess emphasizes that neurosensitivity “has important implications for both theoretical and applied work in any discipline that deals with human functioning” (2015: 142). Consequently, interdisciplinary research indicates that management research may derive substantial benefits from taking account of neurosensitivity. Therefore, in this paper, I pursue the following research question: How is neurosensitivity

related to organizational ambidexterity and organizational social capital? In my inquiry, the microfoundational perspective serves as the lens through which this question will be answered.

Microfoundations can be defined as "foundations that are rooted in individual action and interaction" (Foss, 2011: 1414). Significantly, micro-level mechanisms (e.g., inter-individual dynamics) evolve in an interactive manner, resulting in aggregated macro-level outcomes (e.g., firm culture). Consequently, Barney and Felin (2013) emphasize that any work on microfoundations needs to focus on social aggregation and emergence. Thus, although the final objective of the microfoundations movement is to better understand firm-level outcomes (e.g., firm performance), in explaining these outcomes, primacy is given to the micro-level but without denying the influences of macro-level conditions (Felin et al., 2015). With this in mind, the microfoundations movement argues that strategic management research should incorporate micro-macro links (e.g., how individuals affect firm culture) in addition to – and not instead of – macro-macro links (e.g., how firm culture affects firm performance) and/or macro-micro links (e.g., how firm culture affects individuals).

According to Abell, Felin, and Foss (2008), there are three main reasons why scholars ought to explore the microfoundations of firm-level factors. First, explanations based solely on macro-macro links are prone to alternative explanations that are based on micro-macro links, resulting in an incomplete - or even illusory - understanding of organizational phenomena. Second, explanations that are based on micro-level factors are more stable and fundamental than explanations that are based exclusively on the macro level. Third, in order to achieve (sustained) competitive advantage, managers need to act through specific interventions, which must inevitably focus on the micro level. In the context of these three issues, I argue that neurosensitivity (i) serves as a stable and fundamental explanatory factor for organizational ambidexterity and social capital and (ii) is an important individual-level factor that managers

and leaders should consider in their decision-making. Therefore, my paper may contribute to the development of a new, sensitivity-based management theory.

The present conceptual article provides a new perspective on the microfoundations of organizational ambidexterity and social capital. Concerning organizational ambidexterity, I contribute to open questions such as “how do individual factors affect organizational ambidexterity?” (Raisch et al., 2009: 693) and “are different types of people or skills required to be able to successfully explore or exploit?” (Gupta, Smith, & Shalley, 2006: 703). Regarding this first research gap, I argue that neurosensitivity is positively related to explorative behavior and negatively related to exploitative behavior. Moreover, I discuss how these two sensitivity-based, individual-level outcomes aggregate in an interactive manner into organizational ambidexterity. Concerning organizational social capital, Adler and Kwon emphasize that theoretical “work will be needed to clarify the role of motivation and abilities” (2002: 35) as important individual-level sources of organizational social capital. In the context of this second research gap, I argue that neurosensitivity is positively related to donating social capital and negatively to capturing social capital. Furthermore, I discuss how these two sensitivity-based, individual-level outcomes are ultimately related to organizational social capital.

Concerning these contributions, I begin with a short introduction to the current state of research regarding the microfoundations movement, organizational ambidexterity, and organizational social capital. I then briefly review neurosensitivity and the interdisciplinary research underlying it. In the main section of the paper, I present eight propositions regarding neurosensitivity in the corporate context. Specifically, I link neurosensitivity with four business-relevant, individual-level outcomes (explorative behavior, exploitative behavior, donoring social capital, and capturing social capital), which are moderated by individual- and firm-level conditions. I then proceed to connect these sensitivity-based, individual-level

outcomes with organizational ambidexterity and organizational social capital. Finally, I discuss the theoretical and practical implications of my model as well as future research directions.

2.2 Theoretical Foundation

2.2.1 Organizational Ambidexterity

Organizational ambidexterity can be defined as "an organization's ability to be aligned and efficient in its management of today's business demands while simultaneously being adaptive to changes in the environment" (Raisch & Birkinshaw, 2008: 375). Accordingly, firms are ambidextrous when they "are capable of simultaneously exploiting existing competencies and exploring new opportunities" (Raisch et al., 2009: 685). Such an understanding emphasizes that exploration and exploitation are equally important for corporate survival (March, 1991). To balance this trade-off, firms can either create different structures that specialize in one of these two orientations (i.e., structural ambidexterity) or enable particular units, teams, or even individuals to act ambidextrously (i.e. contextual ambidexterity; Gibson & Birkinshaw, 2004).

As empirical evidence indicates that organizational ambidexterity is positively related to firm performance (e.g., Gibson & Birkinshaw, 2004; He & Wong, 2004), there is a growing volume of research exploring the origins of organizational ambidexterity. A decade ago, scholars were already emphasizing that individual-level factors could be important antecedents of organizational ambidexterity (e.g., Gupta et al., 2006; Raisch et al., 2009). Accordingly, some scholars have begun to explore individual ambidexterity (cf. e.g., Good & Michel, 2013; Laureiro-Martínez, Brusoni, Canessa, & Zollo, 2015), which I will explore in greater detail later in this article.

2.2.2 Organizational Social Capital

Though most scholars see social capital as being "an asset that inheres in social relations and networks" (Leana & van Buren, 1999: 538), the term is often used to convey somewhat different meanings. According to Adler and Kwon (2002), one main difference regarding the definition of social capital refers to the focus on internal or external social relations. Whereas the former, sociocentric variant focuses on a collectivity's internal characteristics (e.g., cohesiveness) and thus represents a collective good, the latter, egocentric variant refers to a single actor's ties to others (e.g., professional network) and thus represents a private good. To do justice to both variants, in accordance with Adler and Kwon (2002), I define organizational social capital as a firm's goodwill (i.e., sympathy, trust), which is generated by the internal and external social relations of the firm and its members (Adler & Kwon, 2002). Furthermore, similar to Leana and Pil (2006), I distinguish between internal organizational social capital, which refers to a firm's goodwill that is generated by internal social relations, and external organizational social capital, which refers to a firm's goodwill that is generated by external social relations. In this context, consider the following two examples. Based on the social relations of a single manager, a firm can build a joint venture with another company (Inkpen & Tsang, 2005). In this case, the individual social capital of the manager enables the firm to create external organizational social capital. On the other hand, consider an employee who effectively defends a team member against others who try to systematically devalue him or her, thereby hindering or even preventing workplace bullying. In this case, the employee has contributed to the generation of internal organizational social capital.

Management scholars explore both the outcomes and antecedents of organizational social capital. For instance, whereas internal organizational social capital is positively related to product innovation (Tsai & Ghoshal, 1998), external organizational social capital that is based on employees' social capital is negatively related to firm dissolution (Pennings et al.,

1998). Adler and Kwon are among the very small number of management scholars who have already explicitly begun "examining the 'microfoundations' of social capital" (2002: 25). Specifically, they argue that the motivations and abilities of individuals are important sources of organizational social capital.

2.2.3 Neurosensitivity

Based on Pluess (2015), I define neurosensitivity as "the ability to register and process environmental stimuli" (as cited in Greven et al., 2019: 288). In this context, Pluess (2015) emphasizes that one should differentiate between sensitivity and responsivity. Whereas sensitivity refers to the input (i.e., perception and internal processing), responsivity refers to the output (i.e., behavioral consequences). The function (i.e., underlying mechanism) that transforms input into output is based on neurosensitivity, which refers to the sensitivity of the nervous system (Homberg et al., 2016; Pluess, 2015). Furthermore, sensitivity is shaped by a gene-environment interaction (Keers & Pluess, 2017).

Pluess (2015) integrated the interdisciplinary research on individual differences in environmental sensitivity among adults, children, and animals. In his meta-framework, Pluess (2015) differentiates between the observation that interindividual differences in sensitivity exist (i.e., environmental sensitivity) and the mechanism of this observation (i.e., neurosensitivity). In the present study, neurosensitivity is used as the central term, because it seems to be the most appropriate term that refers to this fundamental trait, which a) has neurological foundations (Acevedo et al., 2018) and b) concerns not only external, but also about internal stimuli (Greven et al., 2019) as implied by "environmental".

Pluess' (2015) integration had already been anticipated, as scholars of all three research streams (regarding adults, children, and animals) have referred to one another by pointing out the remarkable similarities among their findings (cf., e.g., Aron & Aron, 1997; Aron et al., 2012; Belsky & Pluess, 2009; Boyce & Ellis, 2005; Stamps & Groothuis, 2010; Wolf et al.,

2008). These include the theories of differential susceptibility (Belsky & Pluess, 2009), biological sensitivity to context (Boyce & Ellis, 2005), and sensory processing sensitivity (Aron & Aron, 1997).[1] While the biological sensitivity to context view emphasizes the biological property of neurosensitivity, both the differential susceptibility and sensory processing sensitivity views focus more on the trait level and behavioral reaction perspective (Greven et al., 2019). Furthermore, in contrast to sensory processing sensitivity, differential susceptibility and biological sensitivity to context are both based on evolutionary thinking. Whereas 'sensory processing sensitivity' refers to sensitivity differences among adults, 'differential susceptibility' and 'biological sensitivity to context' refer to sensitivity differences among children. Although, thus far, there have been only about three dozen scientific studies exploring sensitivity differences among adults, the research on sensitivity differences among children is more extensive (cf. e.g., the meta-analysis by Slagt et al., 2016). Furthermore, as regards the observed sensitivity differences among more than 100 animals (Acevedo et al., 2014), different terms are used to refer to very similar phenomena, such as 'behavioral syndromes' (Sih & Del Giudice, 2012), 'behavioral plasticity' (Stamps, 2016), and 'responsiveness' (Wolf et al., 2008). Although the state of research regarding sensitivity differences among animals is remarkable, with over 11,000 scientific publications (Forsman, 2015), the use of different terms makes it difficult to survey this large research stream. Moreover, all three research streams - namely, those on sensitivity differences among adults, children, and animals - are expanding. In the context of these three streams, please note that the present paper uses 'neurosensitivity' as an umbrella term that refers to all three research streams. Similarly, I term both human and non-human individuals as more or less sensitive, although such labeling remains rare in the research stream regarding sensitivity differences among animals (except for dogs; cf. Braem et al., 2017).

[1] For a detailed description of the three theories and an extensive literature review, see Greven et al. (2019).

It has long been discussed whether neurosensitivity is continuous or categorical (cf. e.g., Aron, Aron, & Jagiellowicz, 2012; Ellis, Boyce, Belsky, Bakermans-Kranenburg, & van IJzendoorn, 2011). Recently, Lionetti et al. (2018) found that this trait seems to be both continuous, exhibiting a normal distribution, and categorical, existing across three latent classes, which include high-, medium-, and low-sensitivity groups.

According to recent sensitivity research (Acevedo et al., 2018; Homberg et al., 2016), there are four sensitivity facets: (1) increased awareness of environmental subtleties, (2) deeper information processing, (3) increased empathy, and (4) increased susceptibility to overstimulation. Regarding the first sensitivity facet, the neurological study by Acevedo et al. (2014) shows an increased activity of the insula by highly sensitive persons, which is a brain area that is related to consciousness (Craig, 2009). Regarding the second sensitivity facet, the same neurological study reveals increased activity of the mirror neuron system , the area of the brain linked to empathy in highly sensitive persons (Baird et al., 2011). As for the third sensitivity facet, both a theoretical study (Bridges & Schendan, 2019a) and an empirical study (Bridges & Schendan, 2019b), showed environmental sensitivity to be associated with increased creativity. Regarding the fourth sensitivity facet, environmental sensitivity is related to increased stress (Andresen et al., 2018; Evers et al., 2008). Accordingly, whereas the three first sensitivity facets can be understood as referring to the bright side of sensitivity, the fourth facet can be seen as referring to the dark side of sensitivity.

To enable empirical research on neurosensitivity, the research stream that examines sensitivity differences among adults (i.e., sensory processing sensitivity) provides a first self-report measure. Aron and Aron's (1997) Highly Sensitive Person Scale encompasses 27 items and was introduced as a unidimensional scale. However, other scholars have questioned the unidimensionality of the scale, as some have found three factors (Konrad & Herzberg, 2017; Smolewska et al., 2006) and others two factors (Evans & Rothbart, 2008). In this context,

Greven et al. (2019), in their extensive and critical review on neurosensitivity, conclude that "there is therefore reasonably good evidence that sensory processing sensitivity can be considered a distinct construct" (p. 295). In the same vein, (Dyson, Olino, Durbin, Goldsmith, and Klein (2012) already stated that existing personality constructs at best explain a modest proportion of the variance of neurosensitivity, suggesting that neurosensitivity is not fully captured by other constructs.

2.3 A Sensitivity-Based View of Ambidexterity and Social Capital

To link neurosensitivity with organizational ambidexterity and organizational social capital, I use a microfoundational perspective that guides us from the micro level up to the macro level. Because "questions of social aggregation and emergence need to be center stage in any discussion of microfoundations" (Barney & Felin, 2013: 138), my examination of neurosensitivity requires us to dismantle the black box between the micro level and the macro level. Accordingly, to be able to relate neurosensitivity to organizational ambidexterity and organizational social capital, I first need to explore the individual-level outcomes that are based on different levels of neurosensitivity.

2.3.1 From Neurosensitivity to Individual-Level Outcomes

To understand the origins of organizational ambidexterity, an increasing number of scholars are exploring individual ambidexterity (cf. e.g., Good & Michel, 2013; Laureiro-Martínez et al., 2015), which can be defined as an individual's "behavioral orientation toward combining exploration and exploitation related activities" (Mom, van den Bosch, & Volberda, 2009: 812). As management research has already started to explore the neuronal foundations of

individual ambidexterity (cf. Laureiro-Martínez, Brusoni, & Zollo, 2010; Laureiro-Martínez et al., 2015), it seems reasonable to assume that neurosensitivity, which is also expected to have neuronal foundations (Pluess, 2015), is linked with individual ambidexterity. In this context, the neurological findings by Laureiro-Martinez et al. (2015) have shown that exploration and exploitation are based on separate cognitive processes. Accordingly, this is where I begin my investigation of explorative behavior.

Exploration refers to innovation, experimentation, discovery, and flexibility (March, 1991). According to Good and Michel (2013), explorative behavior is based on divergent thinking, which is the "ability to generate as many responses as possible to a stimulus" (2013: 438). In turn, two of the four sensitivity facets proposed by Homberg et al. (2016) refer to greater awareness of the environment as well as deeper processing of information by highly sensitive persons. Therefore, heightened neurosensitivity, which - by definition - leads to increased responsiveness to stimuli, may have a connection with divergent thinking and, thus, with explorative behavior.

With respect to psychological evidence, Evans and Rothbart (2008) found a positive correlation between the Highly Sensitive Person Scale and associative sensitivity, which seems to be highly related to divergent thinking when we consider its definition as "reactive cognitive content that is not related to standard associations with the environment" (Evans & Rothbart, 2008: 110). Furthermore, it has already been suggested that highly sensitive persons display increased creativity (Aron & Aron, 1997), which has a strong relation to divergent thinking and, consequently, explorative behavior (Good & Michel, 2013). Accordingly, higher scores on the Highly Sensitive Person Scale are positively correlated with openness to experience (Smolewska et al., 2006), which, in turn, is widely acknowledged as a predictor of creativity (Feist, 1998).

In the context of biological evidence, Acevedo et al. summarize that "more sensitive organisms have an enhanced awareness of opportunities (e.g., food, mates, and alliances) and threats (e.g., predators, loss of status, competitors), and thus may be more ready to respond to emerging situations" (2014: 580). In line with this statement, biologists also emphasize that individuals who are more sensitive are more accurate in choosing the right option in their respective environments, since they have a greater ability to collect and store information (Sih & Del Giudice, 2012; Wolf et al., 2008). For instance, in an experiment carried out with the bird species known as the 'great tit', after the birds' food location was changed, it was the more sensitive individuals that registered the environmental change more quickly than the less sensitive individuals (Verbeek, Drent, & Wiepkema, 1994).

In sum, this psychological and biological evidence emphasizes that highly sensitive individuals manifest greater environmental awareness, which may ultimately result in increased responsiveness to new opportunities. Therefore, this leads to my first proposition:

Proposition 1: The higher an employee's level of neurosensitivity, the more likely they are to show explorative behavior.

However, highly sensitive employees' increased ability to explore seems to be based on a trade-off with regard to exploitative behavior. Exploitation refers to efficiency, selection, implementation, and execution (March, 1991). Whereas exploration is about generating variety in experience, exploitation is concerned with generating reliability in experience (Holmqvist, 2004). Therefore, according to Good and Michel (2013), the ability to focus attention is fundamental to the exploitation of existing opportunities because it serves as a filter that excludes new and potentially disruptive information, thereby preventing distraction. However, highly sensitive persons are described as being "unable to retain focus despite distracting, extraneous sensory information" (Bakker & Moulding, 2012: 344), which is consistent with the fact that these individuals generally register stimuli more easily. Furthermore, highly sensitive

persons are characterized as likely to "pause to check" (Aron & Aron, 1997: 348) and as "observing carefully before acting" (Aron, Ketay, Hedden, Aron, Markus, & Gabrieli, 2010: 219). Ultimately, both of these propensities lead to increased behavioral inhibition (Aron et al., 2012), which, in turn, may substantially hinder exploitative behavior.

Complementary to this psychological evidence, biologists report that more sensitive individuals generally behave less aggressively as well as more cautiously and fearfully (Pluess, 2015). Furthermore, Sih and Del Giudice (2012) argue that sensitive individuals are more risk-prone and show a lower orientation toward immediate rewards. Accordingly, "fast animals take risks while gathering more short-term gains, whereas slow animals take time (sacrifice short-term gain) to make accurate inferences and decisions that are often safer […], but relatively low in short-term gain rate" (Sih & Del Giudice, 2012). Aron et al. describe this fast, less sensitive approach as "being first to act" (2010: 219), which further strengthens the connection between this approach and exploitative behavior.

Overall, although increased perceptiveness may be an asset when it comes to exploring new opportunities, the same ability may be a liability where resolutely exploiting existing opportunities is concerned. Accordingly, the present lines of reasoning lead to the following proposition:

Proposition 2: The higher an employee's level of neurosensitivity, the less likely they are to show exploitative behavior.

In his seminal work on social capital, Portes emphasizes that it is critical to distinguish "between the motivations of recipients and of donors in exchanges mediated by social capital" (1998: 5). Accordingly, whereas donors of social capital are those who agree to the claims of others and thus donoring social capital, recipients of social capital are those whose claims are accepted by others and thus capture social capital. Since two of the four sensitivity facets proposed by Homberg et al. (2016) refer to greater awareness of other people's moods and

stronger emotional reactions by highly sensitive persons, it seems reasonable to assume that neurosensitivity is linked to motivations to both donate and capture social capital.

Adler and Kwon (2002) emphasize that individuals vary in their motivations to serve as donors of social capital. Thus, I propose that neurosensitivity leads to increased motivation to serve as a donor of social capital and, thus, donor social capital. In this regard, highly sensitive persons show increased activity in brain areas relating to empathy (Acevedo et al., 2014), which is the ability to comprehend and experience another's feelings (Salovey & Mayer, 1990). In line with these neurological findings, one item on the Highly Sensitive Person Scale is “Do other people's moods affect you?” (Aron & Aron, 1997; 352). Furthermore, Acevedo et al. conclude that highly sensitive persons may show “greater attunement to others’ and responsiveness to others’ needs” (2014: 581), which also refers to increased empathy. In turn, Spector and Fox (2002) emphasize that empathy is the most studied personality variable in relation to prosocial behavior. Indeed, a meta-analysis shows that empathy predicts prosocial behavior (Eisenberg & Miller, 1987). In sum, based on their recent review of neurological findings, Acevedo et al. (2018) conclude that heightened neurosensitivity ultimately fosters cooperation, which strengthens my proposition that environmental sensitivity is positively related to donoring social capital.

In addition to this psychological evidence, biologists report that more sensitive individuals generally behave less aggressively (Pluess, 2015). For instance, in a follow-up experiment with the aforementioned birds, more sensitive individuals started less fights with conspecifics than the less sensitive individuals did (Verbeek, Boon, & Drent, 1996).

In sum, this evidence indicates that highly sensitive individuals seem to feel more emotionally connected to their interaction partners, which may ultimately result in increased donoring of social capital. Accordingly, this leads to the following proposition:

Proposition 3: The higher an employee's level of neurosensitivity, the more likely they are to donor social capital.

However, highly sensitive employees' increased socioemotional abilities to feel others' moods and needs seems contradictory to the ability to capture social capital. In line with this idea, Andresen et al. (2018) have already shown that highly sensitive expatriates possess significantly less social capital than non-highly sensitive expatriates do. Therefore, although increased empathy may increase the motivation to act as a donor of social capital, the same ability may be a liability with regard to acting as a recipient of social capital, because the ability to feel more connected to the needs of others seems to be contradicted by the ability to push through one's own needs. Thus, one of the main underlying processes of this contradiction may be that highly sensitive persons are more prone to socioemotional overstimulation, resulting – among other things – in an increased need to withdraw (Aron & Aron, 1997; Aron et al., 2012). In sum, the "increased emotional information processing" (Homberg et al., 2016: 475) of highly sensitive employees may substantially reduce their assertiveness to push through their own preferences, which strengthens my proposition that neurosensitivity is negatively related to the capture of social capital.

In line with this psychological evidence, Sih and Del Giudice (2012) argue that high-sensitivity animals exhibit unaggressive, less impulsive behavioral styles, while low-sensitivity individuals reveal aggressive, more impulsive behavioral styles. For instance, in the aforementioned experiment with the bird species known as the great tit, high-sensitivity individuals started fewer fights with conspecifics than low-sensitivity individuals (Verbeek et al., 1996). Wolf and Krause (2014) claim that the presence of high-sensitivity individuals encourages positive social outcomes, such as high levels of cooperation. Jandt et al. (2014: 8) for example, state that high-sensitivity social spiders promote group cohesiveness and that the absence of such individuals can lead to extreme within-group fighting and group disbandment.

On the other hand, biological evidence consistently indicates that the increased aggressiveness of low-sensitivity individuals is especially valuable in social interactions with rival groups (cf. e.g., Chapman et al., 2011; Modlmeier & Foitzik, 2011). For instance, whereas high-sensitivity individuals in ant colonies are shy, passive, and inactive brood caretakers who stay within the colony, low-sensitivity individuals are bold, aggressive, and active patrollers who regularly leave the colony (Chapman et al., 2011). In sum, psychologist Pluess states, "the pattern that seems to emerge consistently is that some of the members of each of these species tend to be bold, aggressive, and impulsive when approaching new or threatening situations, whereas others appear to avoid such situations, behaving less aggressively and more cautiously and fearfully" (2015: 138).

To sum up, it has been seen that, whereas highly sensitive employees' openness to socioemotional stimuli seems to be an asset for social capital donoring, the same disposition seems to be a liability for social capital capture. These reflections lead to the following proposition:

Proposition 4: The higher an employee's level of neurosensitivity, the less likely they are to capture social capital.

2.3.2 Moderating Effects of Neurosensitivity on Individual-Level Outcomes

Some scholars indicate that heightened neurosensitivity should be differentiated with regard to its functionality (cf. e.g., Bakker & Moulding, 2012). In this context, the functionality of neurosensitivity is most likely determined by various endogenous and exogenous factors. Accordingly, these two factors may be categorized into individual-level and firm-level conditions. In the following section, I begin with the former.

Concerning individual-level conditions that moderate the functionality of neurosensitivity, two factors seem to be most important. First, because highly sensitive persons "are more than others a product of their environment" (Aron et al., 2012: 11), childhood history

is especially important for them. Indeed, a meta-analysis shows that whereas highly sensitive children with a negative childhood history show the worst cognitive (e.g., school grades) and socioemotional (e.g., teacher-rated social competence) outcomes, highly sensitive children with a positive childhood history exhibit the best cognitive and socioemotional outcomes (Slagt et al., 2016). Even at the beginning of their research, Aron and Aron emphasized that "especially when given the right attention in childhood, in adulthood the unusually sensitive might prove to be the unusually valuable" (1997: 349). Similarly, the biologist Suomi (1997) has found that while more sensitive rhesus macaques with unsupportive childhood histories fell to the bottom of the social hierarchy, those with supportive childhood histories rose to the top of the same hierarchy.

Second, another important moderator seems to be mindfulness, which is "the ability to attend to and be accepting of present experience" (Bakker & Moulding, 2012: 341). For instance, highly sensitive persons only show significantly higher levels of anxiety if their mindfulness is low (Bakker & Moulding, 2012). Furthermore, highly sensitive persons who have been trained in the Mindfulness Based Stress Reduction Program showed significantly lower levels of stress and social anxiety, as well as significantly increased empathy, after the intervention (Soons, Brouwers, & Tomic, 2010). Accordingly, perceiving many stimuli may not be problematic per se. Only when the processing of stimuli is unfavorable (e.g., if one negatively judges every stimulus that is not optimal) can such increased perception become problematic.

In sum, the current evidence indicates that both childhood history and mindfulness are important moderators that strongly affect the functionality of highly sensitive individuals. Therefore, these lines of reasoning support the following proposition:

Proposition 5: Individual-level conditions moderate the effects of neurosensitivity on individual-level outcomes such that exploration, exploitation, creation, and

capture of social capital are increased when individual-level conditions are more favorable.

Concerning firm-level factors that shape the functionality of neurosensitivity, the person-environment fit may be especially important for highly sensitive persons. For a century, scholars have been exploring the person-environment fit (Kristof-Brown, Zimmerman, & Johnson, 2005), which refers to "the compatibility between an individual and a work environment that occurs when their characteristics are well matched" (Kristof-Brown et al., 2005: 281). Because highly sensitive persons are more responsive to both negative and positive environments (Pluess, 2015), it can be assumed that the person-environment fit is - almost by definition—crucial for highly sensitive employees. Indeed, highly sensitive persons are significantly more prone to both alienation at work (Evers et al., 2008) and the intention to leave the organization (Andresen et al., 2017). Furthermore, in an experiment regarding applied reasoning ability, the mood of highly sensitive persons was more strongly affected when they were confronted with both difficult and easy tasks, thereby emphasizing that feedback has a stronger effect on these individuals (Aron, Aron, & Davies, 2005). Finally, because highly sensitive employees perceive all external stimuli more intensely, open-plan offices may be particularly unsuitable for them.

Biological evidence further supports the view that highly sensitive individuals are especially dependent on a favorable person-environment fit. In her review of the consequences of neurosensitivity among animals, Snell-Rood concludes that "habitat choice may be one mechanism by which organisms reduce the costs of plasticity and maximize the benefits" (2013: 1009).

In sum, the current evidence indicates that the person-environment fit strongly affects the functionality of highly sensitive employees, which leads to the following proposition:

Proposition 6: Firm-level conditions moderate the effects of neurosensitivity on individual-level outcomes such that exploration, exploitation, creation, and capture of social capital are increased when firm-level factors are more favorable.

2.3.3 From Sensitivity-Based Individual-Level Outcomes to Firm-Level Outcomes

Concerning organizational ambidexterity, highly sensitive employees may promote adaptiveness to environmental change via increased explorative behavior (cf. proposition 1). It seems reasonable to assume that employees who are more responsive to their environment are also more adaptive to changes in the market environment. The view that single individuals stimulate a firm's adaptation to environmental change can be found throughout the management literature. For instance, Crossan, Lane, and White (1999) highlight that organizational learning is rooted in the intuition of single individuals. In turn, highly sensitive persons are expected to make use of greater intuition (Aron et al., 2012). Furthermore, minority dissent, which refers to group settings where the standpoint of a majority is challenged by an opposing view of a minority (De Dreu & West, 2001; Nemeth, 1986), may be also related to neurosensitivity. It is proposed that minority dissent in working teams prevents premature consensus finding, promotes cognitive complexity, and minimizes defective group decision-making (De Dreu & West, 2001). Because a minority of the workforce registers and processes stimuli differently, it is likely that highly sensitive employees regularly find themselves in an unintended minority position. Since dissent stimulates divergent thinking and team innovation, even though the minority view may not yet represent the optimal solution or opinion (De Dreu & West, 2001; Nemeth, 1986), the importance of different, complementary viewpoints in working teams becomes obvious. Therefore, I argue that based on their increased explorative behavior, highly

sensitive employees increase the group's capacity to explore new opportunities and ultimately trigger adaptation to environmental changes.

In any case, in order to be truly ambidextrous, and given that highly sensitive employees show decreased exploitative behavior (cf. proposition 2), it can be expected that a firm needs diverse levels of neurosensitivity, which complement each other in an intertwining manner. In this context, biologists emphasize that a mixture of neurosensitivity types in social insects leads to increased fitness and productivity compared with groups that have only one type (Jandt et al., 2014). The view that groups need different levels of neurosensitivity is supported by Dingemanse and Wolf (2013), who argue that populations with diverse levels of neurosensitivity exhibit superior stability and persistence in the face of environmental changes. For instance, in their experiment, Burns and Dyers (2008) showed that honey bees differ in their foraging approaches, representing a kind of bet-hedging for different environmental conditions. Specifically, more sensitive individuals perform better in conditions that offer few rewarding flowers. Conversely, less sensitive individuals perform better in conditions that offer many rewarding flowers. Consequently, when rewards are more obvious to exploit, "being first to act" brings greater reward than "observing carefully before acting" (Aron et al., 2010: 219).

In sum, I argue that the exploitation-exploration dilemma is largely based on a sensitivity-based trade-off between the capacity to explore new opportunities and the capacity to exploit existing competencies. Hence, my argument that firms need a sensitivity-diverse workforce in order to achieve organizational ambidexterity leads to the following proposition:

Proposition 7: The greater the variance in employees' levels of neurosensitivity within the firm, the more likely the firm is to achieve organizational ambidexterity.

As discussed in the theoretical section of my article, I distinguish between internal and external organizational social capital. In this section, I will show that such a differentiation is needed when exploring the relationship between neurosensitivity and organizational social

capital. In the context of two of the four proposed sensitivity-based, individual-level outcomes, I argue that whereas the increased donoring of social capital of highly sensitive employees will be positively related to the creation of internal organizational social capital, the decreased capture of social capital among highly sensitive employees will be negatively related to the creation of external organizational social capital.

In the context of proposition 3, donoring of social capital is expected to develop (internal) organizational social capital (Bolino, Turnley, & Bloodgood, 2002). Other scholars support this kind of microfoundational view. For instance, similar to minority dissent, Grant and Patil (2012) argue that single individuals can exert minority influence by initiating the transition of norms of self-interest into helping norms. This theoretical reasoning has already been demonstrated empirically. For example, in experiments regarding social dilemmas, Weber and Murnighan (2008) showed that a single consistent contributor can increase the cooperativeness of the whole group. Furthermore, Schlösser, Berger, and Fetchenhauer (2017) have demonstrated that justice sensitivity, which refers to the ease of perceiving and reacting to injustice, predicts cooperation in public good games. In turn, highly sensitive persons are described as showing “unusual sympathy for the helpless” such as “victims of injustice” (Aron et al., 2012: 11). Interestingly, in the context of sensitivity among animals, biologists confirm such psychological evidence.

Wolf and Krause (2014) predict that the presence of more sensitive individuals increases both behavioral coordination and social competition within groups, thereby encouraging positive social outcomes, such as high levels of cooperation. For instance, in experiments with social spiders, more sensitive individuals showed increased behavioral coordination by adapting their task execution to the presence of their colony mates, thereby facilitating efficiency gains from a sensitivity-based division of labor (Holbrook, Wright, & Pruitt, 2014). Furthermore, Jandt et al. (2014: 8) note that more sensitive social spiders promote group

cohesiveness and that the absence of such individuals can lead to extreme within-group fighting and group disbandment. In addition to supporting behavioral coordination, social competition is also thought to promote the catalyzing influence of highly sensitive individuals on positive social outcomes. Because more sensitive individuals can better detect socially unfavorable behavior and can then influence the specific interaction partner, the interaction partners of more sensitive individuals are thus being indirectly pressurized to exhibit more socially favorable behavior (Wolf & Krause, 2014). Such a catalyzing influence of highly sensitive employees on group cooperativeness may be especially strong when it comes from those who exhibit high social status; similarly, Grant and Patil (2012) argue that an individual's capacity to exert minority influence on helping norms is moderated by that individual's status. In turn, as shown in the context of proposition 5, highly sensitive employees with favorable individual-level conditions can be expected to exhibit increased status. In sum, highly sensitive employees—and especially those with favorable individual-level conditions—may "lubricate the social machinery of the organization" (Smith, Organ, & Near, 1983: 654).

With regard to external organizational social capital, highly sensitive employees may contribute less to the creation of this type of social capital than less sensitive employees do. Because highly sensitive employees perceive and process all external stimuli more intensely, it can be expected that social stimuli are also more (biologically) costly for them. In this context, highly sensitive persons are expected to withdraw more often (Aron & Aron, 1997; Aron et al., 2012). Therefore, paradoxically, though highly sensitive employees seem to have a positive impact on their interaction partners (cf. propositions 3+8), they are probably less sociable than less sensitive employees. In line with this reasoning, Aron and Aron (1997) showed that neurosensitivity is positively related to social introversion and shyness. In turn, it is well known that introverted individuals engage less frequently in networking activities (Janasz & Forret, 2008). The tendency to social introversion can be expected to be more pronounced when

meeting strangers, as highly sensitive persons are thought to be especially cautious when exposed to novel environments (Aron & Aron, 1997). Indeed, Andresen et al. (2017) showed empirically that highly sensitive expatriates generate less individual social capital than non-highly sensitive expatriates. Consequently, for highly sensitive employees, social interactions with unknown, potential network partners may be (biologically) more costly than encounters with familiar team members, thereby having a negative impact on the creation of external organizational social capital. This view is supported by biological evidence.

Biological experiments suggest that more sensitive individuals spend more time within the secure boundaries of their colony. For example, whereas more sensitive individuals in ant colonies represent brood caretakers who stay within the colony, less sensitive individuals represent patrollers who regularly leave the colony (Chapman et al., 2011). Similarly, in an experiment with different colonies of social spiders, more sensitive individuals became brood care specialists (Holbrook et al., 2014). In light of the present and previous biological evidence, one important pattern seems to be that whereas an individual's aggression that is directed externally is rather beneficial for a group, an individual's aggression that is directed internally is rather detrimental for a group.

In sum, I argue that the creation of organizational social capital is largely based on a sensitivity-based trade-off between the capacity to have a positive impact on others, which tends to promote the generation of internal organizational social capital, and the capture of social capital, which tends to promote the generation of external organizational social capital. Therefore, my argument that firms need a sensitivity-diverse workforce in order to achieve high levels of organizational social capital leads to the following proposition:

> *Proposition 8: The greater the variance in employees' levels of neurosensitivity within the firm, the more likely it is that high levels of (internal and external) organizational social capital are achieved.*

2.4 Discussion

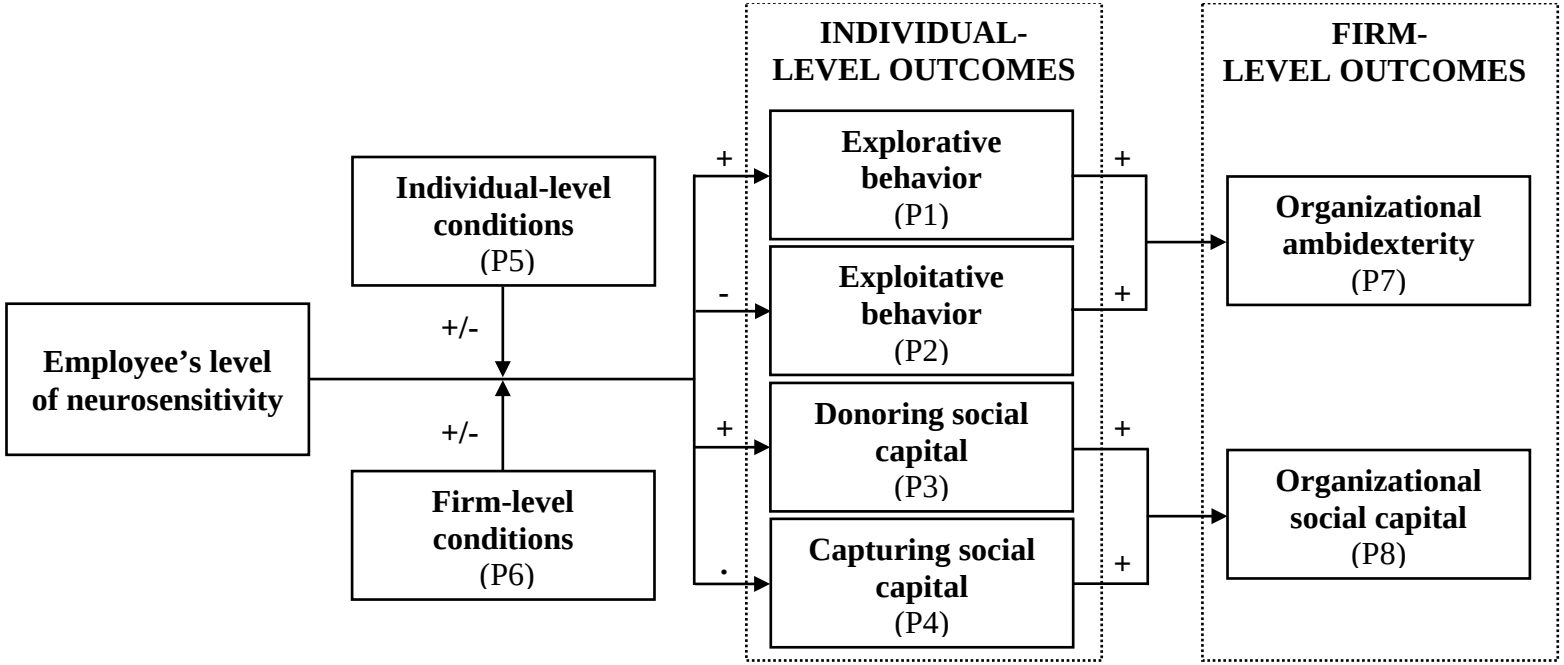
A better, microfoundational understanding of organizational ambidexterity and organizational social capital is vitally important from both theoretical and practical standpoints, as both outcomes are crucial to a firm's competitive capacity (Nahapiet & Ghoshal, 1998; Raisch et al., 2009). In this context, based on interdisciplinary research regarding neurosensitivity, my article provides a new perspective on these two firm-level factors and ultimately offers a novel, sensitivity-based view of the firm. Figure 1 presents my conceptual model of neurosensitivity in the corporate context and summarizes my eight propositions.

With regard to organizational ambidexterity, I proposed that heightened neurosensitivity leads to increased explorative behavior and reduced exploitative behavior. Furthermore, I argued that firms need a workforce with diverse sensitivity levels in order to achieve organizational ambidexterity. Regarding organizational social capital, I proposed that heightened neurosensitivity leads to increased creation of social capital and decreased capture of social capital. Moreover, I argued that heightened neurosensitivity contributes positively to internal organizational social capital but negatively to external organizational social capital.

To maximize the 'bright sides' and minimize the 'dark sides' of heightened neurosensitivity, I emphasized that both individual-level and firm-level conditions are essential to realizing the full potential of highly sensitive employees. In this context, referring to the popular flower metaphor put forward by Boyce and Ellis (2005) appears to provide fruitful results. Pursuant to this, highly sensitive individuals are described as orchids, who are dependent on supportive conditions. Given such supportive conditions, an orchid blooms especially beautifully. On the other hand, dandelions represent low-sensitivity individuals, who are relatively unaffected by both adverse and supportive conditions. In addition to these two

extreme types, Lionetti et al. (2018) have recently suggested that tulips represent persons of normal sensitivity.

Figure 3: A model of neurosensitivity in business



2.4.1 Theoretical Implications

The present article offers important implications for the research on organizational ambidexterity and organizational social capital. Furthermore, this section will also discuss some theoretical implications for management research in general.

With regard to organizational ambidexterity, the present article strengthens the importance of recent research on individual ambidexterity, which emphasizes that explorative and exploitative behaviors are based on distinct cognitive processes (cf., e.g., Good & Michel, 2013; Laureiro-Martínez et al., 2015). Gupta et al. (2006) intuitively anticipated that different skills may be needed in order to successfully explore and/or exploit. However, "the antecedents of individual ambidexterity remain a critical gap in the literature" (2015: 320). Since various scholars (e.g., Aron et al., 2012; Homberg et al., 2016) emphasize that highly sensitive persons process information differently than non-highly sensitive persons, it seems reasonable to assume that neurosensitivity is related to individual ambidexterity. Furthermore, my proposition that neurosensitivity is positively related to explorative behavior and negatively to exploitative behavior implicitly suggests that normally sensitive persons may be found among ambidextrous managers, a topic that is currently under investigation by a number of scholars (e.g., Laureiro- Martínez et al., 2015; Mom et al., 2009). In sum, an important implication of the present article is that scholars exploring organizational ambidexterity should seriously consider the recent advances regarding individual ambidexterity. Accordingly, any examination of the origins of organizational ambidexterity should incorporate—or at least discuss—individual ambidexterity.

As for organizational social capital, this article offers important implications regarding the theoretical clarification of individual differences in motivations and abilities (cf. Adler & Kwon, 2002). Existing research on organizational social capital has rarely focused on individual-level factors. Accordingly, Kwon and Adler emphasize that "because social capital

is about relationships, researchers have not paid much attention to the characteristics of the actors involved in the relationships" (2014: 416). An important exception is the work of the same authors, who argue that individual motivation and ability are key factors that affect the generation of social capital (cf. Adler & Kwon, 2002). In this context, the present article implies that individuals' motivations and abilities can fundamentally differ in ways that generate different types of social capital. Whereas highly sensitive employees are considered to be especially motivated and capable of contributing to internal organizational social capital (cf. collective good; Adler & Kwon, 2002), low-sensitivity employees are considered to be especially motivated and capable of contributing indirectly to external organizational social capital by building individual social capital (cf. private good; Adler & Kwon, 2002; Leana & van Buren, 1999). Therefore, this implication further highlights the fact that scholars ought to differentiate more explicitly between different types of social capital (e.g., internal vs. external).

Because neurosensitivity is a fundamental trait, which can be expected to have broad and deep implications in the corporate context, I see four more implications for management research in general. First, my theoretical reflections have the potential to further foster the rise of microfoundational research. Accordingly, because neurosensitivity is a fundamental, multispecies trait (Pluess, 2015), researchers of microfoundations cannot ignore the recent, interdisciplinary findings on neurosensitivity. In this context, Felin and Foss' (2011) remarkable poverty of stimulus argument, which emphasizes that organizational capabilities and routines have endogenous origins in individuals, actually intuitively refers to the existence of neurosensitivity, thereby implicitly highlighting the importance of neurosensitivity for the microfoundations movement. Second, my article could help to stimulate and revitalize research on the sources of (sustained) competitive advantage, which represents a major topic in strategic management (Barney, 1991). Therefore, whereas it can be assumed that all sensitivity levels can be valuable in the right context, both extremes of the normally distributed neurosensitivity

continuum may represent individuals with relatively rare characteristics. However, the most functional ‘orchid employees’ may be truly rare. Furthermore, since the person-environment fit is expected to be very important for the functionality of highly sensitive employees, Barney’s (1991) third criterion of imperfectly imitable resources also appears to be fulfilled. Thus, it can be stated that heightened neurosensitivity has the potential to serve as a source of sustained competitive advantage, which is in line with the view that neurodiversity serves as a source of competitive advantage (Austin & Pisano, 2017). Third, it seems that whereas the disadvantages of heightened neurosensitivity are rather obvious and proximate (cf., e.g., decreased capture of social capital; decreased exploitative behavior), its advantages are rather vague and distant (cf. e.g., increased explorative behavior; positive effect on internal organizational social capital). This observation is in line with March’s (1991) statements regarding the proximate and predictable returns of exploitation and the distant and uncertain returns of exploration. Finally, in their review on the effects of diversity in organizational groups, Milliken and Martins suggest that diversity affects “the group's ability to process information, perceive and interpret stimuli, and make decisions” (1996: 416). Because my article emphasizes that employees differ substantially in how they perceive stimuli and process information, research on organizational diversity needs to begin to acknowledge neurosensitivity as an important diversity factor. In the context of Harrison, Price, and Bell’s (1998) differentiation between surface-level and deep-level diversity, I contend that this fundamental trait refers to deep-level diversity. Furthermore, I argue that it is important to explicitly consider the variety of employees’ neurosensitivity in order to avoid a biased focus on, for example, employees with average or low sensitivity (e.g., in terms of organizational design or task assignments). Therefore, I am broadening the discourse on organizational diversity by highlighting a hitherto under-researched but highly relevant facet, which represents an important part of the emerging neurodiversity perspective (Harms et al., 2019).

2.4.2 Future Research

This article opens up several interesting avenues for future research. When introducing a new construct to management research, it is common to do this conceptually, as has been done in the present article. Concerning future directions, research on neurosensitivity in the corporate context will logically evolve from such abstract, theoretical reflections to specific, empirical examinations. With this order in mind, I discuss four research opportunities in the following paragraph. First, according to Lionetti et al. (2018), future research on lowered neurosensitivity will be valuable. Accordingly, it would be interesting to explore how (especially) low-sensitivity individuals may behave in the corporate context. In this context, psychopathic individuals, who are the subject of an increasing amount of research attention from current organizational psychologists (Smith & Lilienfeld, 2013), may have especially low levels of neurosensitivity. For instance, psychopathic individuals are described as being exploitative (Smith & Lilienfeld, 2013), antisocial (Boddy, 2011), and stress resistant (Glenn, Kurzban, & Raine, 2011). Interestingly, these descriptions are opposing characteristics of the present propositions regarding highly sensitive employees. Second, after having presented this paper's conceptual insights regarding neurosensitivity in the corporate context, my propositions should be tested empirically. In this context, one should consider that, until now, only one scale has been available. Furthermore, the Highly Sensitive Person Scale (see Aron & Aron, 1997) may be biased towards low-functioning highly sensitive employees. For instance, Evans and Rothbart conclude that the Highly Sensitive Person Scale "is more heavily weighted by negative affect-related items" (2008: 117). Accordingly, it seems advisable to revisit this scale or even create an alternative measure. Third, it is highly recommended that empirical research on neurosensitivity include potential interaction effects. In this context, another fruitful avenue could be to incorporate potential moderators other than those proposed in the present article (i.e., childhood history, mindfulness, and person-environment fit). Finally, as firm-level

outcomes are more difficult to explore empirically, it seems useful to first explore the individual-level outcomes of neurosensitivity.

2.4.3 Practical Implications

From a practical standpoint, the present article has several important implications. In general, I expect that neurosensitivity will, sooner or later, form an important part of a firm's diversity management. In this context, in order to balance between exploration and exploitation as well as between internal and external organizational social capital, my propositions provide concrete orientation with respect to sensitivity-based team composition. Indeed, the same orientation can also be implemented in recruitment. Concerning team composition and recruitment, the optimal variance and mean in neurosensitivity will certainly be dependent on the context. For instance, I expect that highly dynamic industries (e.g., IT industry) and firms that are still in their infancy (e.g., start-ups) will particularly benefit from heightened neurosensitivity. Consequently, consciously managing neurosensitivity could prove especially valuable in the current rise of the digital age.

In sum, firms are challenged to maximize the opportunities and minimize the risks that are associated with specific levels of neurosensitivity. Though such a pioneering role will be demanding, the first step toward successfully managing neurosensitivity is the awareness of its existence and its implications - and the present article has already contributed to this first step.

3 Study 2

Neurosensitivity, Work Conditions, and Organizational Citizenship Behavior:
The Vantage-Sensitive Good Citizens?

Abstract

Organizational citizenship behavior (OCB) refers to individual socio-psychological contributions that are critical to organizational effectiveness. Consequently, substantial research has explored dispositional predictors of OCB. However, the power of most dispositional predictors remains limited. In this context, this empirical study explores the fundamental trait of neurosensitivity as a new predictor of OCB that is directed to individuals (OCBI). Accordingly, employees differ in their ability to register and process external stimuli such as others' needs. However, whereas vantage sensitivity is consistently associated with positive outcomes, vulnerable sensitivity is related to negative outcomes. Drawing on conservation of resources (COR) theory, the results of 322 online survey participants largely support my hypotheses by showing that vantage sensitivity leads to increased OCBI, while vulnerable sensitivity leads to decreased OCBI. In addition, while low-sensitivity employees are only marginally affected by working conditions (e.g., noise and room climate), sensitive employees' engagement in OCBI is strongly affected by working conditions in a for-better-and-for-worse manner. Finally, the theoretical and practical implications of my findings, as well as limitations and future research directions, are discussed.

3.1 Introduction

Organizational citizenship behavior (OCB), which refers to organizational members' contributions to "the social and psychological context that supports task performance" (Organ, 1997: 91), is critical to organizational effectiveness (Organ, 2018; Podsakoff & MacKenzie, 1997). Consequently, substantial research has explored the antecedents of OCB. More specifically, dispositional factors have long been seen as important predictors of OCB (cf. e.g., Smith et al., 1983) and are still widely explored in the modern OCB literature (cf. e.g., Chiaburu, Oh, Berry, Li, & Gardner, 2011; Miao, Humphrey, & Qian, 2017). However, the predictive power of most dispositional predictors remains limited, such as the five-factor model (Chiaburu et al., 2011), positive and negative affectivity (Organ & Ryan, 1995), prosocial personality orientation (Penner, Midili, & Kegelmeyer, 1997), emotional intelligence (Miao et al., 2017), and empathy (Borman et al., 2001). In this context, we argue that the fundamental trait of neurosensitivity may be a promising, new predictor of OCB.

Integrating substantial psychological and biological advances of the last two decades (e.g., Aron & Aron, 1997; Belsky & Pluess, 2009; Wolf et al., 2008), Pluess (2015) introduced environmental sensitivity and, thus, neurosensitivity, as a fundamental, species-overarching trait. Accordingly, individuals differ in their "ability to register, process, and respond to external factors" (Pluess, 2015: 138). Though every individual has this ability to some extent, a minority of so-called highly sensitive persons show heightened neurosensitivity (Lionetti et al., 2018). However, research indicates that this increased perceptiveness can be both a liability and an asset (Homberg et al., 2016; Pluess, 2015). On the one hand, this greatly depends on which type of heightened sensitivity is prominent (Pluess, 2015). Research differentiates between vantage and vulnerable sensitivity, both of which generate different outcomes. Specifically, vantage sensitivity refers to increased responsiveness to positive influences and thus consistently leads

to positive outcomes such as resilience and creativity (Bridges & Schendan, 2019b; Moore & Depue, 2016). Vulnerable sensitivity, meanwhile, refers to increased responsiveness to negative influences and thus consistently leads to negative outcomes, such as work stress and alienation of work (Evers et al., 2008; Moore & Depue, 2016). Somewhere in between these two poles, general sensitivity refers to increased responsiveness to both positive and negative influences (Moore & Depue, 2016). On the other hand, environmental factors, such as noise or chaotic scenes, also affect whether the outcomes of heightened sensitivity are positive or negative (Aron & Aron, 1997; Pluess, 2015). Therefore, the outcomes of this fundamental trait should not be understood as absolute but rather as relative to an individual's sensitivity type and environment.

Whereas there have already been a small number of studies on neurosensitivity in the context of work stress (Evers et al., 2008) and turnover intentions (Andresen et al., 2018), this trait has not yet been linked to OCB. However, in their foundational work, Smith, Organ, and Near already emphasized that "sensitivity to others' needs" (1983: 662) is crucial for OCB. Furthermore, they also assumed that some individuals "tend to be more sensitive to their external environments, more sensitive to social stimuli, and more prone to spontaneity in behavior" (Smith, Organ, & Near, 1983: 656) than others. In turn, neurological research indicates that the sensitive brain shows "greater attunement to others' and responsiveness to others' needs" (Acevedo et al., 2014: 592). Accordingly, the examination of neurosensitivity with OCB seems promising. In the context of the different types of OCB (cf. e.g., Organ, 2018; Williams & Anderson, 1991), we expect that neurosensitivity is more strongly connected to OCB that is directed towards individuals (OCBI) than OCB that is directed to the organization (OCBO). This view is based on the assumption that increased perceptiveness to others' needs has a stronger effect on the social exchange between employees than between an employee and the organization. Indeed, this assumption is supported by meta-analytic evidence showing that

dispositional predictors are more strongly connected with OCBI than with OCBO (Chiaburu et al., 2011; Organ & Ryan, 1995). Consequently, the present study focuses exclusively on OCBI.

This, which is based on an online survey of 322 German employees, is based on the conservation of resources (COR) theory (Hobfoll et al., 2018). Accordingly, individuals strive to protect and acquire resources, in order to promote their goals (Hobfoll, 1989). Since OCBI is an important part of performance ratings (MacKenzie, Podsakoff, & Fetter, 1993), it can be assumed that increased resource availability also increases OCBI. Even though we expect that neurosensitivity is related to OCBI, the relationship may depend strongly on an employees' sensitivity type (i.e., internal resources) and work environment (i.e., external resources). As such, the present study explores the relationship between various different sensitivity types (i.e., high versus low sensitivity; vantage versus vulnerable sensitivity) and OCBI. Furthermore, we examine the moderating effect of working conditions, which "reflect the environment within which a job is performed" (e.g., noise and room temperature; Morgeson & Humphrey, 2006: 1324), on the relationship between different sensitivity types and OCBI. Consequently, the present study includes both dispositional and environmental factors as potential antecedents of OCBI. Therefore, the research question we pursue is: How is neurosensitivity related to OCBI and to what extent do work conditions affect this relationship?

Drawing on conservation of resources (COR) theory, the present empirical paper provides a new perspective on the antecedents of OCBI. In this context, dispositional factors and workplace environment have long been seen as crucial antecedents of OCB (cf. e.g., Smith et al., 1983). As for dispositional factors (i.e., OCB literature), we contribute to the call that "it may be advantageous to think beyond the FFM framework" (Chiaburu et al., 2011: 1152), which refers to the five-factor model of personality that has been studied mostly as a dispositional predictor of OCB. However, the predictive power of the five-factor model has remained (Chiaburu et al., 2011; Organ & Ryan, 1995). Consequently, with neurosensitivity

we introduce a new dispositional factor that may be a promising predictor of OCBI. Concerning workplace environment (i.e., job design literature), we contribute to Campion's (1988) (hitherto) unsupported hypothesis that some employees are less and some are more tolerant to adverse work conditions, such as noise or unpleasant room climate. Consequently, the present study shows how such work conditions exhibit different impacts on the engagement in OCBI of more and less sensitive employees. Lastly, this study has important implications for sensitivity literature. To our knowledge, the present examination is the first study to explore neurosensitivity with work behavior.

Building towards these contributions, we start with a short introduction to the current state of the research regarding OCB and neurosensitivity. Subsequently, we deduce our hypotheses by synthesizing OCB and sensitivity research. After explaining our methodological approach the results are presented. Finally, we discuss the theoretical and practical implications of our results, as well as the limitations and future research directions.

3.2 Theoretical Foundation

3.2.1 Conservation of Resources Theory

Conservation of resources (COR) theory starts with the basic "tenet that individuals strive to obtain, retain, foster, and protect" resources (Hobfoll et al., 2018: 104). Resources are defined as "those objects, personal characteristics, conditions, or energies that are valued by the individual or that serve as a means for attainment of these objects, personal characteristics, conditions, or energies" (Hobfoll, 1989: 5). COR theory suggests that individuals are motivated to conserve their present resources and invest their resources to acquire future resources (Halbesleben et al., 2014). For the present examination, COR theory's corollaries 1-3 are especially important.

Corollary 1 of COR theory suggests that those individuals "with greater resources are less vulnerable to resource loss and more capable of resource gain. Conversely, individuals […] who lack resources are more vulnerable to resource loss and less capable of resource gain" (Hobfoll et al., 2018: 104). Accordingly, corollary 2 of COR theory states that initial resource loss entails future loss (Hobfoll, 2001), which can lead to resource loss spirals (Hobfoll et al., 2018). For instance, burnout and the resulting decreased internal resources are negatively related to job performance (Wright & Hobfoll, 2004). In turn, corollary 3 of COR theory states that initial resource gain induces further gain (Hobfoll, 2001), which can lead to resource gain spirals (Hobfoll et al., 2018). For instance, increased psychological wellbeing - and thus increased internal resources - are positively related to job performance (Wright & Hobfoll, 2004).

3.2.2 Organizational Citizenship Behavior

Organ defines OCB as organizational members' "contributions to the maintenance and enhancement of the social and psychological context that supports task performance" (1997: 91). Research has consistently shown that there are different types of OCB. The most common, modern distinction is between the target of OCB, namely individuals (OCBI) and the organization (OCBO; cf. e.g., Organ, 2018; Williams & Anderson, 1991). OCBI encompasses prosocial behavior toward co-workers, such as listening to their worries or helping them when their workloads are heavy. In turn, OCBO includes pro-organizational behavior, such as showing internal compliance or external advocacy to people outside of the organization.

OCBI has been linked with various outcomes on the level of individuals, teams, and organizations. On the individual level, employees who engage in OCBI more often receive both higher performance ratings by their managers (MacKenzie et al., 1993) and increased promotion recommendations (van Scotter, Motowidlo, & Cross, 2000). Where co-workers are concerned, OCBI is positively related to co-workers' job satisfaction and affective

commitment when abusive supervision is low (Tepper, Duffy, Hoobler, & Ensley, 2004). At the team level, OCBI leads to increased team performance in terms of both quantity and quality outcomes (Podsakoff, Ahearne, & MacKenzie, 1997). At the organizational level, a review by Podsakoff and MacKenzie (1997) showed that OCBI consistently leads to increased organizational performance, thereby highlighting the managerial relevance of knowing the most important predictors of OCBI.

It has long been proposed that dispositional factors have a stronger influence on OCBI than on task performance (cf. e.g., Borman & Motowidlo, 1993; Organ & Ryan, 1995). Consequently, OCB scholars have explored various dispositional predictors of OCBI, such as the five-factor model mentioned above (Chiaburu et al., 2011), positive and negative affectivity (Organ & Ryan, 1995), prosocial personality orientation (Penner et al., 1997), emotional intelligence (Miao et al., 2017), and empathy (Borman et al., 2001). In this context, the five-factor model has been the most studied dispositional predictor of OCB. However, meta-analytic evidence shows that the predictive power of the five-factor model is limited (Chiaburu et al., 2011; Organ & Ryan, 1995). For instance, regarding OCBI, Chiaburu et al. (2011) reported a corrected mean correlation of 0.21 for conscientiousness and 0.18 for both agreeableness and openness. In turn, other empirical studies indicate that the strongest dispositional predictors of OCB are emotional intelligence (i.e., 0.52) and empathy (i.e., 0.28), which have a strong relationship to each other (Borman et al., 2001; Miao et al., 2017) Accordingly, OCB research indicates that empathy-related traits show the strongest predictive power with respect to OCB. Furthermore, McNeely and Meglino (1994) showed that empathy is significantly positively related to OCBI but not to OCBO.

3.2.3 Neurosensitivity

Based on Pluess (2015), we define neurosensitivity as “the ability to register and process environmental stimuli” (as cited in Greven et al., 2019: 288). This perceptual ability is based on the sensitivity of the nervous system (Bridges & Schendan, 2019a; Pluess, 2015).

With his meta-framework of environmental sensitivity, Pluess (2015) integrated different sensitivity frameworks, such as sensory processing sensitivity (Aron & Aron, 1997), differential susceptibility (Belsky & Pluess, 2009), and biological sensitivity to context (Boyce & Ellis, 2005). Based on rich empirical evidence of these preceding sensitivity frameworks, Pluess (2015) introduced four sensitivity types: low sensitivity, vantage sensitivity, general sensitivity, and vulnerability. For reasons of consistency, we use the term vulnerable sensitivity instead of vulnerability. The four sensitivity types are shaped by an interaction between the early environment and sensitivity genes, such as the serotonin transporter gene 5-HTTLPR (Homberg et al., 2016). In the absence of sensitivity genes, an individuals’ sensitivity level will be low; thus shaping low sensitivity (1), which refers to unresponsiveness to both negative and positive influences (Moore & Depue, 2016). In the presence of sensitivity genes, the early environment will shape which sensitivity facets are more pronounced. When experiencing favorable early environments (i.e., warmth and positive control of parents), sensitivity genes trigger vantage sensitivity (2), which refers to unresponsiveness to negative influences and responsiveness to positive influences (Moore & Depue, 2016; Pluess & Belsky, 2013). When experiencing neutral early environments, sensitivity genes trigger general sensitivity (3), which refers to responsiveness to both negative and positive influences (cf. differential susceptibility; Belsky & Pluess, 2009; Moore & Depue, 2016). When experiencing unfavorable early environments (i.e., hostility and negative control of parents), sensitivity genes trigger vulnerable sensitivity (4), which refers to responsiveness to negative influences but unresponsiveness to positive influences (cf. diathesis-stress; Belsky & Pluess, 2009; Moore &

Depue, 2016). There is a rich body of empirical evidence to support these different sensitivity types. For instance, the meta-analysis of 84 studies by Slagt, Dubas, Deković, and van Aken (2016) shows that while sensitive children that experienced a favorable childhood (i.e., vantage sensitivity) achieve the best educational outcomes (i.e. grades and teacher-rated social competence), educational outcomes were worst among those sensitive children that experienced an unfavorable childhood (i.e., vulnerable sensitivity) . Table 2 provides an overview of the four sensitivity types and their differential responsiveness to environmental influences.

Table 2: Overview of the four sensitivity types

Sensitivity Types	**Responsiveness to …**	
	positive influences	**negative** influences
Vantage Sensitivity	High	Low
Vulnerable Sensitivity	Low	High
General Sensitivity	High	High
Low Sensitivity	Low	Low

Whereas the four sensitivity types determine whether the bright or the dark side of sensitivity is more pronounced, sensitivity theory also provides characteristics of these bright and dark sides of sensitivity. According to the latest sensitivity research (Acevedo et al., 2018; Homberg et al., 2016), there are four sensitivity facets, whereby the first three facets refer to the bright side of sensitivity, while the last facet refers to the dark side of sensitivity: (1) increased awareness of environmental subtleties, (2) deeper information processing, (3) increased emotional reactivity and empathy, and (4) increased susceptibility to overstimulation. However, the manifestation of these sensitivity facets is dependent on an individual's sensitivity type. Specifically, whereas vantage sensitivity enhances the positive aspects (i.e., facets 1-3) and reduces the negative aspect (i.e., facet 4), vulnerable sensitivity reduces the positive aspects

and enhances the negative aspect. In between, general sensitivity leads to a balanced manifestation of the four sensitivity facets.

Pluess' (2015) four sensitivity types have substantial managerial significance. For instance, whereas low-sensitivity employees are resilient toward negative influences, they are also so-called vantage-resistant to positive influences (Pluess & Belsky, 2013). Conversely, whereas general-sensitive employees are less resilient to negative influences, they also benefit more strongly from positive influences.

3.3 Hypotheses Development

3.3.1 OCBI and its Relation to Vantage, General, and Vulnerable Sensitivity

Based on COR theory, we argue that the (internal and external) resource availability of highly sensitive employees may differ fundamentally "in a for-better-and-for-worse manner" (Belsky & Pluess, 2009: 888) by showing both increased responsiveness to positive influences and negative influences compared to non-highly sensitive employees, which ultimately influences the capacity of highly sensitive employees to show OCBI.

An important corollary of COR theory states "that initial resource gain begets further gain" (Hobfoll, 2001: 355), which can lead to resource gain spirals (Hobfoll et al., 2018). In this context, vantage sensitivity might be a concrete manifestation of a resource gain spiral, which was already initiated in childhood. In turn, another important corollary of COR theory states "that initial [resource] loss begets future loss" (Hobfoll, 2001: 354), which can lead to resource loss spirals (Hobfoll et al., 2018). In this context, vulnerable sensitivity might be a concrete manifestation of a resource loss spiral that was already initiated in childhood.

Empathy, which is the ability to comprehend and experience another's feelings (Salovey & Mayer, 1990), is considered to be an important antecedent of OCBI (Miao et al., 2017).

According to Goleman, Boyatzis, and McKee, empathy is “the fundamental competence of social awareness” and crucial for “social effectiveness in working life” (2013: 50). Correspondingly, Miao et al. (2017) recently summarized that psychological research has examined the effects of empathy on prosocial behavior for decades, thereby leading to the so-called empathy-altruism hypothesis, which was conclusively confirmed in the meta-analysis by Eisenberg and Miller (1987). This evaluation is also supported by a more recent meta-analysis that explored empathy specifically with OCB. Accordingly, Borman et al. (2001) analyzed the findings of seven studies on empathy, which exhibited the highest weighted mean correlation with OCB (i.e., 0.28) compared to other well-established dispositional predictors such as conscientiousness (i.e., 0.24), agreeableness (i.e., 0.13), and positive affectivity (i.e., 0.18). Consequently, rich empirical evidence indicates that empathy is an important predictor of OCBI.

In turn, empathy is also strongly connected to neurosensitivity. As proposed earlier, one of the four sensitivity facets refers to increased emotional reactivity and empathy of sensitive individuals (Acevedo et al., 2018; Homberg et al., 2016). Correspondingly, neurological evidence indicates that the sensitive brain, via brain mechanisms that are “important for integration of others’ states and empathy, mediates the experiences of highly sensitive individuals as being more responsive to others’ moods” (Acevedo et al., 2014). This increased responsiveness to the needs of others can be expected to increase the motivation to engage in OCBI. This view that sensitive employees have the potential to “lubricate the social machinery of the organization” (Smith et al., 1983: 654) is supported by Acevedo et al. (2018), who suggest in the conclusion of their review on neurological sensitivity studies that heightened sensitivity promotes cooperation and well-being of others. However, based on COR theory, we argue that the concrete manifestation of the specific sensitivity types finally determines whether sensitive employees actually show increased OCBI.

In the context of Pluess' (2015) sensitivity types, we expect different relationships between vantage, general, and vulnerable sensitivity and OCBI. Specifically, we argue that only vantage-sensitive employees show increased OCBI independent of their work conditions, because of their increased resource availability (cf. resource gain spiral). Furthermore, we expect that general-sensitive employees only show increased OCBI when their work conditions and, thus, external resources, are favorable (cf. Hypothesis 2a). Finally, we expect that vulnerable-sensitive employees show decreased OCBI due to decreased resource availability (cf. resource loss spiral). This view is consistent with empirical evidence between positive and negative affectivity and OCBI.

Whereas positive affectivity refers to the tendency to experience positive affect, negative affectivity refers to the tendency of experiencing negative affect (Cropanzano, Weiss, Hale, & Reb, 2003). In their meta-analysis, Organ and Ryan (1995) showed that positive affectivity is positively correlated to OCBI (i.e., 0.15). This evaluation has been confirmed by Borman et al. (2001), who reported a weighted mean correlation of 0.18 between positive affectivity and OCB. In turn, Organ and Ryan (1995) also reported a negative correlation between negative affectivity and OCBI (i.e., -0.06), even though this relation has been barely not significant (i.e., 95% confidence interval from -.130 to .003).

Sensitivity scholars consistently relate neurosensitivity to both positive and negative affect. Not surprisingly, vantage sensitivity has been related to positive affect by various scholars (cf. e.g., Bridges & Schendan, in press a; Homberg et al., 2016; Pluess & Belsky, 2013. In contrast, vulnerable sensitivity has been related to negative affect (cf. e.g., Bridges & Schendan, 2019a; Sobocko & Zelenski, 2015). Consequently, because vantage sensitivity exhibits the bright side of sensitivity and may therefore make full use of the increased empathy, we expect that vantage sensitivity leads to increased OCBI. On the other hand, because vulnerable sensitivity exhibits the dark side of sensitivity and, thus, may not make use of the

increased empathy, we expect that vulnerable sensitivity leads to decreased OCBI. Between the two, because general sensitivity is balanced between the bright and dark side of sensitivity, we suggest that general sensitivity is dependent on favorable work conditions to show increased OCBI and is therefore not – in isolation –significantly related to OCBI.

Hypothesis 1a: Vantage sensitivity leads to increased OCBI.

Hypothesis 1b: Vulnerable sensitivity leads to decreased OCBI.

3.3.2 Moderating Effect of Work Conditions on Sensitivity and OCBI

An important principle of COR theory is that of 'resource caravan passageways'. Accordingly, "people's resources exist in ecological conditions that either foster and nurture or limit and block resource creation and sustenance" (Hobfoll et al., 2018: 107). Because "resources do not exist individually but travel in packs or caravans" (Hobfoll et al., 2018: 106), the resource availability of employees is not determined in isolation, but rather is affected by external conditions. In this context, we argue that the 'resource passageways' between highly sensitive employees and their environment are more open compared to less sensitive employees. In this sense, sensitivity theory indicates that general sensitivity leads to increased responsiveness to both negative and positive environmental influences (Belsky & Pluess, 2009; Lionetti et al., 2018; Pluess, 2015). Because this increased responsiveness works "in a for-better-and-for-worse manner" (Belsky & Pluess, 2009: 888), environmental influences can be both especially demanding and especially resourceful for highly sensitive individuals. In this context, it seems fruitful to refer to the popular flower metaphor by Boyce and Ellis (2005). Accordingly, sensitive individuals are described as being orchids, who are strongly dependent on supportive conditions. In such supportive conditions, an orchid blooms especially beautifully. On the other hand, dandelions represent low-sensitivity individuals, who are relatively unaffected by either adverse or supportive conditions. Accordingly, it can be expected

that general-sensitive employees' engagement in OCBI is strongly influenced by work conditions.

In the context of job design, scholars emphasize that work conditions, such as noise and room temperature, exhibit substantial influences on employees (Campion, 1988; Morgeson & Humphrey, 2006). Favorable work conditions, which represent external resources, minimize physical strain and therefore lead to less fatigue and fewer health complaints among employees (Campion, 1988; Stone & Gueutal, 1985). Interestingly, Campion (1988) hypothesized that some employees respond more negatively to unfavorable work conditions. While his empirical data did not support this claim, we assume that his hypothesis actually refers to highly sensitive employees. Meanwhile, in their pioneering work, Aron and Aron (1997) already emphasized that sensitive individuals are easily overwhelmed by strong sensory input like noise, bright lights, and strong smells (cf. e.g., items 7 and 25 of the Highly Sensitive Person Scale). It seems reasonable that such influences may be especially strong for a sensitive nervous system, thereby substantially affecting the engagement in OCBI of general-sensitive employees, because their external resource availability is strongly influenced by work conditions. As for vulnerable sensitivity, it can be expected that influences also affect OCBI of vulnerable-sensitive employees, because their resource availability is more affected by negative influence than less sensitive employees. However, since vantage-sensitive employees are only more responsive to positive influences and vulnerable-sensitive only to negative influences, the impact of work conditions can be expected to be somewhat smaller than it is for general-sensitive employees.

Hypothesis 2a: Work conditions moderate the effect of general sensitivity on OCBI. Specifically, the more favorable the work conditions, the more positive the influence of general sensitivity on OCBI.

Hypothesis 2b: Work conditions moderate the effect of vulnerable sensitivity on OCBI. Specifically, the more hindering the work conditions, the more negative the influence of vulnerable sensitivity on OCBI.

3.4 Method

3.4.1 Procedure and Sample

We collected data from 343 German participants via an online survey system. Participants were recruited by the online labor system www.clickworker.com, which is similar to MTurk. Online labor systems are seen as a new way to "obtain high-quality data inexpensively and rapidly" (Buhrmester, Kwang, & Gosling, 2011: 3). To participate, individuals needed to be employed at an organization with two or more members. Participants who have fulfilled this requirement and successfully passed the survey as well as two attention controls (i.e., "This is an attention check; please select "XYZ"), as recommended by Goodman, Cryder, and Cheema (2013) when using an online labor system, received a small financial reward. To ensure response quality, the 21 participants who passed the survey in less than half of the expected amount of time, were excluded from the analysis. Missing data was not an issue because we forced participants to answer all questions. This yielded a sample of 322 participants for data analysis. The sample had an average age of 37.45 (SD = 9.14) and an average organizational tenure of 8.33 years (SD = 7.30). 140 participants (43.48% of the sample) were female.

3.4.2 Measures

OCBI. This variable was measured using the 7-item sub-factor OCBI of the job performance scale by Williams and Anderson (1991). We translated all items using the

commonly used translation-back translation procedure (Brislin, 1980). The item response format was a 5-point Likert scale anchored from one (disagree) to five (agree). As shown by the meta-analysis by Carpenter, Berry, and Houston (2014), self-rated OCB scales only show small differences from other-rated OCB scales and are thus a valid and viable method of measuring OCB. Furthermore, they state that self-rated OCB scales even have some advantages compared to other-rated OCB, such that supervisors and teammates may not have adequate observations of the varied OCB that an employee may engage in. Sample items were "I help others who have been absent" and "I pass along information to coworkers". Cronbach's alpha was 0.80.

Sensitivity. This variable was measured by Pluess' (2013) 12-item short version of the Highly Sensitive Person Scale by Aron and Aron (1997), which has been utilized in several studies (cf. e.g., Lionetti et al., 2018; Pluess et al., 2018). Although the original scale was introduced as being unidimensional, scholars have for the most part reported either a three-factor (cf. e.g., Smolewska et al., 2006; Sobocko & Zelenski, 2015) or a two-factor solution (c.f. e.g., Evans & Rothbart, 2008; Tillmann et al., 2018). Most recently, Bridges and Schendan (2019b) integrated the two solutions by claiming that two factors of the three-factor solution (i.e., ease of excitation and low sensory threshold) actually refer to one factor of the two-factor solution (i.e., negative affect). On the other hand, they suggest that the remaining factor of the three-factor solutions (i.e., aesthetic sensitivity) is equal to the second factor of the two-factor solution (i.e., orienting sensitivity). In the context of Pluess' (2015) sensitivity types, and consistent with recent reflections of various sensitivity scholars (cf. e.g., Bridges & Schendan, in press a; Homberg et al., 2016), we claim that the first factor, 'negative affect' actually refers to vulnerable sensitivity and that the second factor actually refers to vantage sensitivity. Because we assume orthogonality between vantage and vulnerable sensitivity, the multiplication of these two factors yield to general sensitivity.

Eight items of Pluess' (2013) short version of the Highly Sensitive Person Scale refer to vulnerable sensitivity and only four items refer to vantage sensitivity. Furthermore, because several sensitivity scholars have reported values of Cronbach's alpha that are below 0.70 for vantage sensitivity (cf. e.g., Sobocko & Zelenski, 2015; Yano & Oishi, 2018), we included five more items that refer to this factor; these items were taken from Konrad and Herzberg (2017). Consequently, we finally used 17 items to measure sensitivity . The item response format was a 5-point Likert scale anchored from one (disagree) to five (agree). Sample items were "I seem to be aware of subtleties in my environment" (i.e., vantage sensitivity) and "I find it unpleasant to have a lot going on at once" (i.e., vulnerable sensitivity). Cronbach's alpha was 0.70 for the global score (i.e., general sensitivity), 0.75 for vantage sensitivity, and 0.83 for vulnerable sensitivity.

First, we ran a confirmatory factor analysis that forced the extraction of two factors. Out of the total 17 items, seven items loaded on the – in each case expected – first factor (i.e., vulnerable sensitivity) and nine on the – in each case expected – second factor (i.e., vantage sensitivity). Only one item did not sufficiently load on the expected first factor. Second, for each factor, we chose the four items that loaded most strongly with the specific factor. Table 3 shows the final items and the loadings of each item. For the first factor (i.e., vulnerable sensitivity), loadings were 0.74, 0.76, 0.76, and 0.85. For the second factor (i.e., vantage sensitivity), loadings were 0.66, 0.69, 0.71, and 0.78. Highest inter-item-correlations were 0.63 between item 1 and 2 as well as 0.61 between item 5 and 6, which are still acceptable values. Third, we ran an exploratory factor analysis that confirmed the extraction of two factors with an eigenvalue of greater than one. The first factor accounted for 33.6% and the second factor for 28.3% of the variance, which led to a cumulated variance of 61.9% for the entire scale. Lastly, we tested a second-order factor model to justify the computation of a global score of the scale (i.e., general sensitivity). The second-order model, with the two scales as first-order

factors, showed a good fit to the data (CMIN = 30.406, df = 20, p-value = .064, GFI = .977, CFI = .987, RMSEA = .040), which shows even better values than a recent validation study of the German Highly Sensitive Person Scale by Konrad & Herzberg (2017; cf. e.g., CFI = .974, RMSEA = .080).

Table 3: The 8-item Highly Sensitive Person Scale

Item	Vulnerable Sensitivity	Vantage Sensitivity
1. I get rattled when I have a lot to do in a short amount of time.	**.85**	-.11
2. I find it unpleasant to have a lot going on at once.	**.76**	-.08
3. I am annoyed when people try to get me to do too many things at once.	**.76**	-.02
4. Changes in my life shake me up.	**.74**	-.14
5. I notice and enjoy fine scents.	-.03	**.78**
6. I notice and enjoy delicate tastes.	-.11	**.71**
7. I notice and enjoy nice sounds.	.04	**.69**
8. I seem to be aware of subtleties in my environment.	.01	**.66**

Work Conditions. This variable was measured by the 5-item sub-factor work conditions of the Work Design Questionnaire by Morgeson (2006). We used the German translation by Stegmann et al. (2010). The item response format was a 5-point Likert scale anchored from one (disagree) to five (agree). Sample items were “The workplace is free from excessive noise” and “The job occurs in a clean environment”. Cronbach’s alpha was 0.79.

Control Variables. According to the review by Bernerth and Aguinis (2016), gender (i.e., 63% of the 112 reviewed OCB studies), age (i.e., 50%), and organizational tenure (i.e., 44%) are the three most frequently used control variables in OCB research. Consequently, we included these three variables as controls. Furthermore, although only one of the total 112 OCB studies reviewed by Bernerth and Aguinis (2016) controlled for social desirability,

organizational scholars increasingly recommend controlling for this bias, especially when asking personal questions (cf. e.g., Bernerth & Aguinis, 2016; Ruiz-Palomino & Martínez-Cañas, 2014). Consequently, we measured this fourth control variable with the 6-item German scale of social desirability by Kemper et al. (2012). For each item, the participants were asked to indicate on a 5-point Likert scale to what extent specific statements apply to them. Sample items were “It has happened that I have exploited someone” and “In dispute, I always remain factual and objective”. Cronbach’s alpha was 0.62.

3.5 Results

3.5.1 Data Analysis

In order to test Hypothesis 1, we used hierarchical regression analysis by including the control variables in the first step and the main variable in the second step. We used Hayes’ (2017) PROCESS macro (version 3.0, model 1) in SPSS to test the moderation effects of Hypothesis 2. 5,000 bootstrap samples were used in the present analysis,.

Hypothesis Testing

Means, standard deviations, and correlation coefficients for all measures, including controls, are reported in Table 4.

Table 4: Descriptive statistics and correlations

	Mean	SD	1	2	3	4	5	6	7	8
1. General Sensitivity	3.37	0.55								
2. Vantage Sensitivity	3.72	0.69	.59**							
3. Vulnerable Sensitivity	3.02	0.90	.78**	-.05						
4. Gender	0.43	0.50	.00	.12*	-.09					
5. Age	37.48	9.14	.12*	.12*	.06	.03				
6. Tenure	7.50	7.30	-.05	-.05	-.02	.01	-.52**			
7. Social Desirability	3.44	0.63	-.14**	.06	-.22**	.19**	.06	-.04		
8. OCBI	4.00	0.55	.05	.31**	-.18**	.12*	0.02	-.06	.35**	
9. Work Conditions	3.71	0.83	.03	.15**	-.08	0.10	.14*	-.09	.15**	.18**

Note. n = 322. ** = p < .01; * = p < .05.

We ran hierarchical regression analysis to test our hypotheses regarding vantage sensitivity and vulnerable sensitivity as predictors of OCBI. All variables were entered into the analysis in two steps: 1) control variables; 2) vantage sensitivity and vulnerable sensitivity. Table 5 summarizes the results.

Table 5: Regression analysis of vantage/vulnerable sensitivity and OCBI

	OCBI	
	M1	M2
Step 1: Control variables		
Gender	.07	.03
Age	-.00	-.00
Tenure	0.01	0.01
Social Desirability	.29***	.26***
Step 2: Predictors		
Vantage Sensitivity		.24***
Vulnerable Sensitivity		-.06*
R^2	.128	.222
ΔR^2		.094
F	11.617***	15.019***

Note. n = 322. *** = p < .001; ** = p < .01; * = p < .05.

In support of Hypothesis 1a, the beta associated with vantage sensitivity and OCBI was positive and statistically significant ($\beta = .30$, $p < .001$). Furthermore, in support of Hypothesis 1b, the beta associated with vulnerable sensitivity and OCBI was negative and statistically significant ($\beta = -.16$, $p < .01$).

Next, we ran hierarchical regression analysis to test our hypotheses regarding the moderating effect of work conditions on general sensitivity and OCBI. All variables were entered into the analysis in three steps: 1) control variables; 2) general sensitivity and work conditions; 3) interaction term. Table 6 summarizes the results.

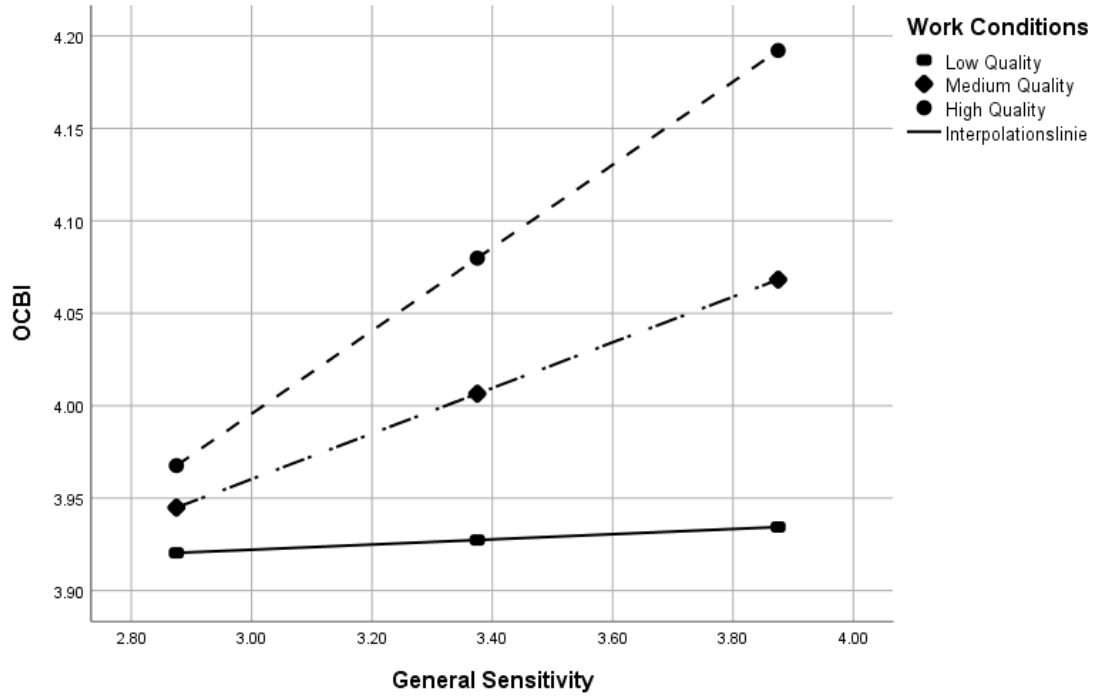
Table 6: Work conditions on general sensitivity and OCBI

	OCBI		
	M1	M2	M3
Step 1: Control variables			
Gender	.06	.06	.07
Age	-.04	-.06	-.00
Tenure	-.07	-.07	-.00
Social Desirability	.34***	.35***	.28***
Step 2: Main effect			
General Sensitivity		.10	-.36
Step 3: Interaction term			
General Sensitivity x Work Conditions			.13*
R^2	.128	.137	.168
ΔR^2		.009	.031
F	11.617***	10.054***	9.045***

Note. n = 322. *** = p < .001; ** = p < .01; * = p < .05.

In support of Hypothesis 2a, the beta of the interaction term of general sensitivity and work conditions on OCBI is positive and statistically significant (β = .02, p < .01, 95% CI from .006 to .040). Figure 4 shows that the pattern of this moderation was in line with what was hypothesized. Furthermore, based on the Johnson-Neyman technique (Hayes, 2017), above 3.57 work conditions units, general sensitivity and OCBI are significantly positively related (t = 1.97, β = .10, p < .05). As the quality of work conditions increases, the relationship between general sensitivity and OCBI becomes more positive up to the highest quality of work conditions, which represent 4.99 units (t = 3.26, β = .29, p < .01).

Figure 4: General sensitivity and work conditions interaction on OCBI



Finally, we ran hierarchical regression analysis to test our hypothesis regarding the moderating effect of work conditions on vulnerable sensitivity and OCBI. All variables were entered into the analysis in three steps: 1) control variables; 2) vulnerable sensitivity and work conditions; 3) interaction term. Table 7 summarizes the results.

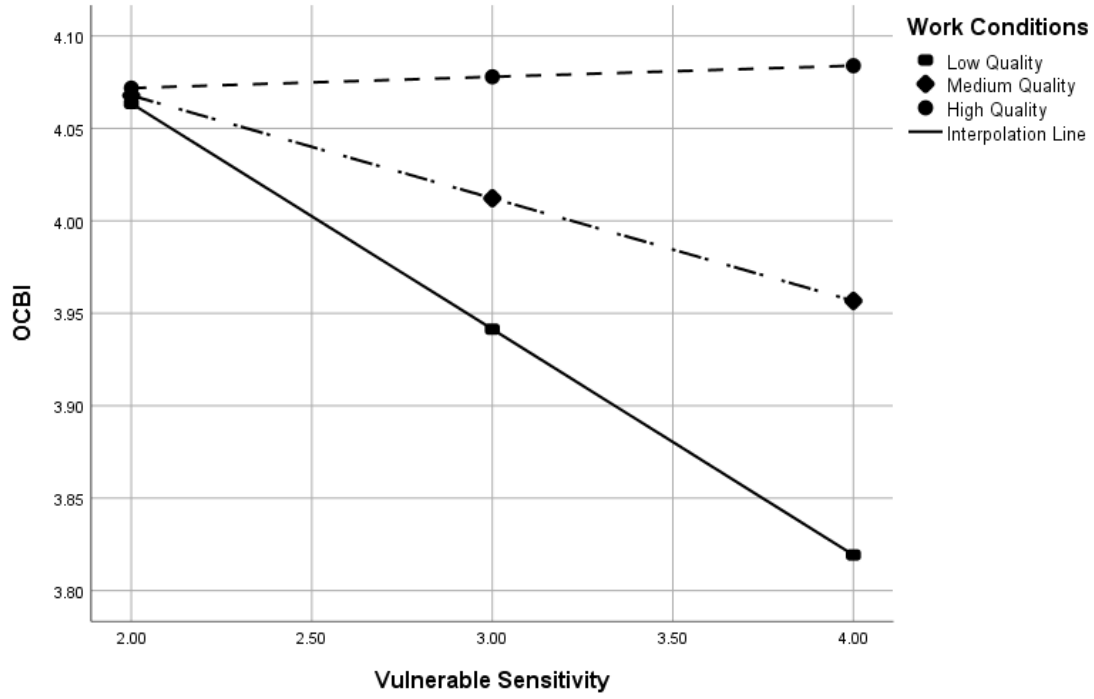
Table 7: Work conditions on vulnerable sensitivity and OCBI

	OCBI		
	M1	M2	M3
Step 1: Control variables			
Gender	.06	.05	.07
Age	-.04	-.03	-.00
Tenure	-.07	-.07	-.00
Social Desirability	.34***	.31***	.25***
Step 2: Main effect			
Vulnerable Sensitivity		-.11*	-.35*
Step 3: Interaction term			
Vulnerable Sensitivity x Work Conditions			.08*
R^2	.128	.139	.167
ΔR^2		.011	.028
F	11.617***	10.213**	8.973***

Note. n = 322. *** = p < .001; ** = p < .01; * = p < .05.

In support of Hypothesis 2b, the beta of the interaction term of general sensitivity and work conditions on OCBI is positive and statistically significant (β = .09, p < .05, 95% CI from .016 to .161). Figure 5 shows that the pattern of this moderation was in line with what was hypothesized. Furthermore, based on the Johnson-Neyman technique (Hayes, 2017), above 3.71 work conditions units, vulnerable sensitivity and OCBI are no longer significantly negatively related (t = -1.97, β = -.06, p < .05). As the quality of work conditions decreases, the relationship between general sensitivity and OCBI becomes more negative until the lowest quality of work conditions, which represent 1.01 units (t = -2.89, β = -.26, p < .01).

Figure 5: Vulnerable sensitivity and work conditions interaction on OCBI



3.6 Discussion

The empirical results show that whereas vantage sensitivity leads to increased OCBI (H1a), vulnerable sensitivity leads to decreased OCBI (H1b). Furthermore, general sensitivity leads to a more pronounced increase in OCBI when working conditions are favorable (H2a). Furthermore, the negative relationship between vulnerable sensitivity and OCBI is neutralized when work conditions are favorable (H2b).

3.6.1 Theoretical Implications

OCB literature. One of the objectives of this research was to explore whether neurosensitivity may serve as a powerful, new predictor of OCBI. Indeed, vantage sensitivity seems – at least compared to other dispositional predictors (cf. e.g., Borman et al., 2001; Chiaburu et al., 2011; Organ & Ryan, 1995) – to be a strong predictor of OCBI. This finding

resonates with Chiaburu et al. (2011), who stated that future research should also explore alternative predictors to the well-established five-factor model. In this context, Organ has recently anticipated that certain traits "predispose the individual to sensitivity toward others' needs" (2018: 298). Furthermore, since sensitivity is related to empathy (Acevedo et al., 2018; Homberg et al., 2016), our results are in line with the meta-analysis by Borman et al. (2001), which showed that empathy was the strongest dispositional predictor of OCB. Consequently, the present study introduces a novel, promising predictor of OCBI, which is based on the latest advances in both psychology and biology (cf. Pluess, 2015).

Job design literature. Organizational scholars have long assumed that some employees are more affected by job design than others (cf. e.g., Campion, 1988; Hackman & Oldham, 1976). Correspondingly, our results strikingly show that vulnerable- and general-sensitive employees are more strongly affected compared to those with low-sensitivity. Specifically, when work conditions are favorable, general sensitivity is positively related to OCBI. Interestingly, though vulnerable sensitivity leads to decreased OCBI, this effect is neutralized when the quality of work conditions is high. These results emphasize that research on work conditions ought to include a more differentiated perspective on employees, as Campion (1988) already called for. In this context, it can be expected that sensitive employees are more affected by job design in general.

Sensitivity literature. Sensitivity scholars have only recently begun to emphasize that one should distinguish between different sensitivity types (cf. e.g., Bridges & Schendan, 2019b; Pluess, 2015). My results indicate that OCBI is strongly affected by whether vantage sensitivity or vulnerable sensitivity is more pronounced in sensitive employees. This finding is in line with recent empirical results regarding creativity, whereby vantage sensitivity was strongly related, while vulnerable sensitivity was barely related to creativity (Bridges & Schendan, 2019b). Likewise, this study strengthens the importance of differentiating between Pluess' (2105)

sensitivity types. Furthermore, after examining neurosensitivity with work stress (Evers et al., 2008) and expatriates' turnover intentions (Andresen et al., 2018), the present study is the first that explores neurosensitivity with a concrete work behavior.

3.6.2 Practical Implications

We see at least four specific practical implications of the present study. First, vantage-sensitive employees show increased OCBI that substantially enhances organizational effectiveness. Consequently, human resource managers may screen new employees for their pronouncement of vantage sensitivity and intentionally appoint vantage-sensitive employees to teams that depend on high levels of cooperation. Second, though the manifestation of vantage sensitivity is strongly affected by childhood experiences, sensitivity research also indicates that mindfulness might promote vantage sensitivity (cf. e.g., Bakker & Moulding, 2012; Soons et al., 2010). Since mindfulness can be trained by using techniques such as meditation or yoga (Good et al., 2016), human resource managers may promote mindfulness training at work by offering specific courses or creating silent spaces where contemplative techniques can be applied appropriately. Third, with respect to exogenous factors, human resource managers can optimize the working conditions for sensitive employees by reducing noise, accident risk, and health hazards or by enhancing room quality (i.e., temperature, humidity, and cleanliness). Accordingly, whereas open plan offices may be particularly problematic, home office may be especially resourceful for sensitive employees, because they can optimize their work environment to suit their preferences. Fourth, from a general perspective, my results highlight the different ways in which employees respond to environmental conditions (i.e., from low-sensitivity employees who are marginally affected to highly sensitive employees who are strongly affected by work conditions). This supports the proponents advocating for more differentiated approaches in human resource management. Consequently, neurosensitivity may – sooner or later – form an important part of an organization's diversity management.

3.6.3 Limitations

This study has several limitations. First, we used a self-report measure of OCBI, which has also been criticized by OCB scholars (cf. e.g., Organ, 2018). However, a recent meta-analysis by Carpenter et al. (2014) showed that self-report measures of OCB are valid and reliable alternatives to other-report measures. Furthermore, by controlling for social desirability, which was strongly connected to OCBI, we minimized some of the issues encountered with self-report measures. Second, my results do not infer causality from neurosensitivity to OCBI. In spite of this, as Chiaburu et al. state, “it is unlikely though for citizenship behaviors (or behaviors in general) to cause personality traits, which are relatively stable and heritable” (2011: 1151). Third, as noted previously, the Highly Sensitive Person Scale was introduced by Aron and Aron (1997) as a unidimensional scale. However, with vantage sensitivity and vulnerable sensitivity, we operationalized two sub-factors of this scale, the existence of which was not explicitly outlined in the earliest sensitivity theory. Accordingly, although my results may represent an important first step, we strongly advise that these results be interpreted with appropriate caution.

3.6.4 Future Research

The present study opens up at least three promising research avenues. First, future studies may explore more complex models that include additional factors such as job satisfaction, which is an important variable in OCB research (Organ, 2018). Third, in experimental designs, work conditions could be manipulated, which would provide the opportunity to explore directly whether work conditions have a stronger effect on highly sensitive employees from the experimental group compared to the control group. Fourth, scholars could explore the relationship between neurosensitivity and other types of OCB, such as OCB that is directed toward the organization (OCBO) or that is directed toward change

(OCBCH). As noted, we expect a less pronounced link between neurosensitivity and OCBO. Therefore, we recommend the inclusion of important mediators or moderators of OCBO, such as attitudinal predictors (e.g., fairness or affective organizational commitment; Organ & Ryan, 1995). With respect to OCBCH, we expect a similar connection between neurosensitivity and OCBI, which may be primarily driven not by empathy as is the case with OCBI, but rather by creativity, which – as already mentioned – is strongly related to vantage sensitivity (Bridges & Schendan, 2019b). Fourth, for general organizational research, we recommend that other work behaviors, such as in-role behavior (i.e., task performance) or innovative behavior also be explored. In this context, we expect similar patterns as with the relation between neurosensitivity and OCBI; namely that these behaviors are also positively related to vantage sensitivity and negatively related to vulnerable sensitivity.

4 Study 3

Neurosensitivity and Task Performance: The Vantage-Sensitive Top Performers?

Abstract

Neurosensitivity is the ability to register and process environmental stimuli. Previous research shows a ‘best-worst-school-performance’ pattern in highly sensitive children. In this context, vantage sensitivity refers to the bright side, whereas vulnerable sensitivity refers to the dark side of sensitivity. However, neurosensitivity has not yet been linked to employees’ performance. Drawing on conservation of resources (COR) theory, and based on 217 German leader-follower dyads, our results show that both employee and leader vantage sensitivity are related to increased leader-rated employee task performance; employee and leader vulnerable sensitivity, meanwhile, are related to decreased employee task performance. Moreover, polynomial regression and response surface analysis show that the comparably highest performance levels are attained by vantage-sensitive dyads. Furthermore, whereas vantage-sensitive leaders enhance the performance of vulnerable-sensitive employees, vulnerable-sensitive leaders decrease the performance of vantage-sensitive employees. Lastly, the theoretical and practical implications of these findings, as well as limitations and future research directions, are discussed.

4.1 Introduction

In order to understand the antecedents of firm performance, the examination of individual performance is critical to organizational research (Crook et al., 2011). Consequently, organizational scholars have examined various dispositional predictors of individual performance, such as personality traits like the 'big five' (Barrick & Mount, 1991) or positive and negative affect (Kaplan, Bradley, Luchman, & Haynes, 2009) as well as skills like cognitive ability (Schmidt, Shaffer, & Oh, 2008) or emotional intelligence (O'Boyle Jr, Humphrey, Pollack, Hawver, & Story, 2011). Meta-analytical evidence shows that personality traits and abilities are indeed important predictors of individual performance (O'Boyle Jr et al., 2011; Schmidt et al., 2008).

Neurosensitivity - a new, interdisciplinary construct that has recently gained momentum (Greven et al., 2019), has been defined as the "the ability to register and process environmental stimuli" (Greven et al., 2019: 288, with reference to Pluess. 2015). While all individuals are more or less sensitive, so-called 'highly sensitive persons' show increased positive scores on this perceptive ability. However, there are two sides to every coin. On the one hand, neurosensitivity is conceptually linked with greater empathy (Acevedo et al., 2014) and has been shown empirically to positively affect creativity (Bridges & Schendan, 2019b). On the other hand, neurosensitivity has also been empirically shown to result in greater susceptibility to work stress (Andresen et al., 2018; Evers et al., 2008).

Whether the bright side or the dark side of heightened sensitivity is predominant, is largely shaped by childhood experiences (Slagt et al., 2016). Accordingly, Pluess (2015) differentiates between vantage sensitivity (Pluess & Belsky, 2013) and vulnerability, referred to herein as vulnerable sensitivity for reasons of consistency. Whereas vantage sensitivity refers to the bright side (i.e., increased awareness, increased empathy, and deeper information

processing) of heightened sensitivity, vulnerable sensitivity refers to the dark side (i.e., increased susceptibility to overstimulation) of heightened sensitivity (Acevedo et al., 2018; Homberg et al., 2016). In the context of individual performance, we know thanks to a meta-analysis of 84 studies (Slagt et al., 2016), that highly sensitive children who are given supportive parenting (i.e., positive control and warmth) show the best educational outcomes (e.g., grades or teacher-rated social competence). In contrast, highly sensitive children with unsupportive parenting (i.e., negative control and hostility) show the worst educational outcomes. In the context of this 'best-worst-performance-pattern' in highly sensitive children, there have not yet been any studies into whether this pattern remains in adulthood in relation to individual task performance, which refers to effective contributions to an organization's technical core (Borman & Motowidlo, 1993).

According to conservation of resources (COR) theory, individuals strive to protect and acquire resources (Hobfoll, 1989). To this end, individuals can dispose of key resources, which helps them to manage their resources (Halbesleben et al., 2014). In this context, neurosensitivity can be understood as a potential key resource. When vantage sensitivity is predominant, heightened sensitivity might serve as a key resource that promotes a resource gain spiral, which is positively related to task performance. In turn, when vulnerable sensitivity is predominant, heightened sensitivity might be more of a hindrance than a resource, promoting a resource loss spiral that is negatively related to task performance. Furthermore, task performance occurs not in isolation, but rather in resource exchanges between leader and employee (Guan & Frenkel, 2019; Kellett, Humphrey, & Sleeth, 2002). Therefore, in the context of COR theory's crossover model (Hobfoll et al., 2018), we examine potential positive crossovers between leader and employee vantage sensitivity as well as potential negative crossovers involving leader and employee vulnerable sensitivity. Consequently, we pursue the following research question:

How is neurosensitivity and – more specifically – employee and leader vantage sensitivity and employee and leader vulnerable sensitivity related to employee task performance?

Our study is highly relevant for both theory and practice. From a theoretical perspective, sensitivity research has recently gained significant momentum. Eleven of the leading sensitivity scholars have published an interdisciplinary literature review that emphasizes the biobehavioral implications of neurosensitivity (see Greven et al., 2019). However, with only two studies (cf. Andresen et al., 2018; Harms et al., 2019), management research is lagging behind these recent advances in psychology, biology, genetics, and neurology. From a practical perspective, high sensitivity "has gained substantial popularity in the public and media, with programs being developed and professionals trained to coach and support highly sensitive employees, leaders, parents and children" (Greven et al., 2019: 288). However, since management research is lagging behind, such practical efforts regarding highly sensitive employees and leaders are for the most part insufficiently backed by scientific evidence.

Our study contributes to the literature in at least three ways. First, we introduce neurosensitivity as a novel, promising predictor of task performance. Specifically, our results show that both employee and leader vantage sensitivity are positively related to employee task performance, while employee and leader vulnerable sensitivity are negatively related to employee task performance. Second, by drawing on conservation of resources (COR) theory, we contribute to two important aspects of this well-established theory; namely resource gain and loss spirals. In this context, with vantage sensitivity, our study suggests a new and promising key resource (cf. Halbesleben et al., 2014). Moreover the crossover model of COR theory and – more specifically – positive crossover (cf. Hobfoll et al., 2018), the existence of which has only recently begun to receive explicit empirical support (Guan & Frenkel, 2019) also marks an important contribution. Third, we contribute to sensitivity research by examining neurosensitivity with a specific work behavior (i.e., task performance), while previous

management research on sensitivity focused solely on psychological states (cf. Andresen et al., 2018; Harms et al., 2019). In building towards these contributions, before presenting our results from an online survey of 217 German leader-follower dyads, the following sections outline the theoretical foundation and the development of our hypotheses.

4.2 Theoretical Foundation

4.2.1 Conservation of Resources Theory

Conservation of resources (COR) theory starts with the basic tenet that "individuals strive to obtain, retain, foster, and protect" resources (Hobfoll et al., 2018: 104). Resources are defined as "those objects, personal characteristics, conditions, or energies that are valued by the individual or that serve as a means for attainment of these objects, personal characteristics, conditions, or energies" (Hobfoll, 1989: 5). COR theory suggests that individuals are motivated to conserve their present resources and invest their resources in order to acquire future resources. For this purpose, individuals can dispose of key resources, which help to manage their resources (Halbesleben et al., 2014). For the purposes of the present examination, COR theory's corollaries 1-3 and the crossover model are especially important.

Corollary 1 of COR theory suggests that those individuals "with greater resources are less vulnerable to resource loss and more capable of resource gain. Conversely, individuals […] who lack resources are more vulnerable to resource loss and less capable of resource gain" (Hobfoll et al., 2018: 104). Accordingly, corollary 2 of COR theory states that initial resource loss entails future loss (Hobfoll, 2001), which can lead to resource loss spirals (Hobfoll et al., 2018). In turn, corollary 3 of COR theory states that initial resource gain induces further gain (Hobfoll, 2001), which can lead to resource gain spirals (Hobfoll et al., 2018). For instance,

whereas increased psychological wellbeing is positively related to job performance, emotional exhaustion is negatively related to job performance (Wright & Hobfoll, 2004).

A newly suggested dimension of COR theory is the exchange of resources via crossover, which "is a dyadic interindividual transmission of psychological states" (Hobfoll et al., 2018: 108). According to Westman (2001), empathy acts as an important crossover mechanism that transmits psychological resources between interaction partners. In this context, COR theory differentiates between negative and positive crossover (Hobfoll et al., 2018). Negative crossover describes, for example, how stress experienced by one person affects the level of stress of another person in the same social environment (Hobfoll et al., 2018). In contrast, positive crossover is defined as the interpersonal process that occurs when psychological resources or positive emotions experienced by one person affect another person (Westman, 2001). For instance, 'guanxi', the concept of a strong interpersonal tie between leaders and employees in Chinese work culture, serves an important job resource for employees, which ultimately enhances their job performance (i.e., task performance and organizational citizenship behavior) (Guan & Frenkel, 2019).

4.2.2 Neurosensitivity

We define neurosensitivity as "the ability to register and process environmental stimuli"(as cited in Greven et al., 2019: 288). Environmental stimuli "are broadly defined and include any salient conditioned or unconditioned internal or external stimuli, including physical environments (e.g. food, caffeine intake), social environments (e.g. childhood experiences, other people's moods, crowds), sensory environments (e.g. auditory, visual, tactile, olfactory), and internal events (e.g. thoughts, feelings, bodily sensations such as hunger, pain)" (Greven et al., 2019: 289).

According to recent sensitivity research (Acevedo et al., 2018; Homberg et al., 2016), there are four sensitivity facets: (1) increased awareness of environmental subtleties, (2) deeper

information processing, (3) increased empathy, and (4) increased susceptibility to overstimulation. Regarding the first sensitivity facet, the neurological study by Acevedo et al. (2014) shows an increased activity of the insula in highly sensitive persons, the area of the brain related to consciousness (Craig, 2009). As for the second sensitivity facet, the same neurological study revealed increased activity of the mirror neuron system in highly sensitive persons; this is the area of the brain related to empathy (Baird et al., 2011). The third sensitivity facet of neurosensitivity was associated in both a theoretical study (Bridges & Schendan, 2019a) and an empirical study (Bridges & Schendan, 2019b), with increased creativity. In the context of the fourth sensitivity facet, neurosensitivity is related to increased stress (Andresen et al., 2018; Evers et al., 2008). Accordingly, whereas the three first sensitivity facets can be understood as referring to the bright side of sensitivity, the fourth facet can be seen to refer to the dark side of sensitivity.

Whether it is the bright side of sensitivity (i.e., increased awareness, increased empathy, and deeper information processing) or the dark side (i.e., increased susceptibility to overstimulation) that is predominant is influenced – amongst other factors –by childhood experiences (Slagt et al., 2016). In this context, Pluess (2015) differentiates between different sensitivity types (i.e., vulnerability and vantage sensitivity; Pluess & Belsky, 2013). While vulnerable sensitivity, which has been shown to be shaped by adverse childhood environments, is associated with negative affect, vantage sensitivity, which is assumed to be shaped by supportive childhood environments, is associated with positive affect (Homberg et al., 2016). Besides childhood environments, one might assume that the specific sensitivity type can still be influenced in adulthood.

4.2.3 Task Performance

Over the last three decades, organizational scholars have concluded that job performance is a multidimensional construct (e.g., Rotundo & Sackett, 2002; Viswesvaran &

Ones, 2000). Although there are various taxonomies of job performance, nowadays most organizational scholars agree that job performance should be differentiated – at least – into task performance (or in-role behavior) and contextual performance (or organizational citizenship behavior; e.g., Motowidlo & van Scotter, 1994; Rotundo & Sackett, 2002). Accordingly, task performance describes how effectively workers perform activities that contribute to the organization's technical core (Borman & Motowidlo, 1997: 99, with reference to Borman & Motowidlo, 1993). In turn, contextual performance can be defined "as contributions to the maintenance and enhancement of the social and psychological context that supports task performance" (Organ, 1997: 91). The differentiation between these dimensions of job performance is important because each dimension can reveal unique relationships with antecedents or outcomes (e.g., Borman & Motowidlo, 1997; Smith et al., 1983). In the present paper, we use both terms (i.e., 'task performance' and 'job performance'). We use 'task performance' in reference to our own results as well as with regard to the results of other studies that also used the term 'task performance' (or 'in-role behavior'). In turn, we use the term 'job performance' to refer to the results of other (mostly older) studies that did not (yet) make the distinction between job performance and task performance.

According to Crook, Todd, Combs, Woehr, and Ketchen, "arguably, all of the applied psychological research focusing on individual job performance is predicated on the assumption that individual-level differences impact organizational-level outcomes" (2011: 451). Consequently, organizational scholars have examined various dispositional predictors of job/task performance, such as the big five personality traits (Barrick & Mount, 1991), positive and negative affect (Kaplan et al., 2009), cognitive ability (Schmidt et al., 2008), or emotional intelligence (O'Boyle Jr et al., 2011). Meta-analytical evidence shows that cognitive ability is the strongest predictor of job performance, followed by personality traits and emotional intelligence (O'Boyle Jr et al., 2011; Schmidt et al., 2008).

4.3 Hypotheses Development

4.3.1 Employee Vantage/Vulnerable Sensitivity and its Relation to Employee Task Performance

We argue that the resource availability of highly sensitive employees can differ fundamentally "in a for-better-and-for-worse manner" (Belsky & Pluess, 2009: 888) compared to non-highly sensitive employees. Vulnerable-sensitive individuals are disproportionately more likely to be negatively affected by negative contextual conditions (Pluess, 2015). In contrast, Pluess and Belsky (2013) describe vantage-sensitive individuals as being more likely than others to benefit from positive contextual conditions, while not being more susceptible to the negative effects of adverse environments (protective function of vantage sensitivity).

In the context of COR theory's corollary 3, vantage-sensitive employees might be more likely to experience resource gains, because the bright side of their heightened sensitivity is predominant. In the context of the first sensitivity facet, vantage-sensitive employees' increased awareness of the environment may foster the recognition of resource investment opportunities, thereby enhancing the resources that ultimately promote task performance. In the context of the second sensitivity facet, the increased empathy of vantage-sensitive employees may help them to build qualitative and trustful relationships, which ultimately act as social resources when needed in future. Indeed, a meta-analysis shows positive links between empathy and job performance (O'Boyle Jr et al., 2011). In the context of the third sensitivity facet, it can be expected that the deeper information processing of vantage-sensitive employees leads to increased cognitive ability (Homberg et al., 2016), which in itself is a powerful resource for job performance in essentially all jobs. In this context, meta-analytical evidence consistently shows that cognitive ability is positively related to job performance (Schmidt et al., 2008).

Hypothesis 1a: Employee vantage sensitivity positively relates to employee task performance.

In the context of COR theory's corollary 2, vulnerable sensitivity might lead to higher propensity for a resource loss spiral, the roots of which can be traced back to childhood. Accordingly, highly sensitive children who experienced unfavorable parenting (i.e., negative control and hostility) in their early years show the worst educational outcomes (e.g., grades or social competence; Slagt et al., 2016). This resource loss spiral of vulnerable-sensitive children is likely to be transferred into adulthood.

Vulnerable-sensitive employees may be more likely to experience resource loss because the dark side of their heightened sensitivity is predominant. In the context of the fourth sensitivity facet, vulnerable-sensitive employees' increased susceptibility to overstimulation also leads to increased risk to stress and burnout (Andresen et al., 2018; Evers et al., 2008), thereby reducing their resources and ultimately hindering task performance. In this context, meta-analytic evidence shows that burnout is negatively related to task performance (Taris, 2006). For instance, in a sample of 294 leader-employee dyads, burnout is negatively related to leader-rated employee task performance (Demerouti et al., 2014). In sum, we expect that vulnerable-sensitive employees show decreased task performance mainly as a result of decreased resource availability,.

Hypothesis 1b: Employee vulnerable sensitivity negatively relates to employee task performance.

4.3.2 Leader Vantage/Vulnerable Sensitivity and its Relationship to Employee Task Performance

In the context of COR theory's crossover model, we expect that a leader's level of vantage sensitivity or vulnerable sensitivity has a substantial effect on an employees' task

performance. Leaders' sensitivity is likely to influence how they exercise their leadership. There is solid research evidence that leader behaviors influence employee performance (e.g., Derue, Nahrgang, Wellman, & Humphrey, 2011).

In the context of COR theory's positive crossover effect, we expect that vantage-sensitive leaders' increased resources are beneficial for the task performances of their followers. Vantage-sensitive leaders' awareness of themselves, of others, and of the context may contribute to well-balanced decisions that promote employee confidence. Their empathy may lead to a better understanding of their employees' needs, which may allow them to support their followers more effectively and to enhance their performance. In this context, Martin et al. describe how "the positive exchanges between the leader and follower increase feelings of affect and liking for the leader, and this also motivates followers to want to meet the leader's work demands" (2016: 71). Furthermore, the deeper information processing of vantage-sensitive leaders may lead to heightened cognitive skills, which are invaluable when advising subordinates. In this context, one empirical study shows that both empathy and cognitive abilities of leaders boost the task performance of their employees (Kellett et al., 2002). In sum, we expect that employees who are led by vantage-sensitive leaders show increased task performance mainly due to the exchange of resources by positive crossover.

Hypothesis 2a: Leader vantage sensitivity positively relates to employee task performance.

In the context of COR theory's negative crossover effect, we expect that vulnerable-sensitive leaders' decreased resources are detrimental to the task performance of their followers. The decreased resource availability of vulnerable-sensitive leaders might be due mainly to their increased susceptibility to overstimulation. Accordingly, vulnerable-sensitive leaders may be less able to handle emotionally charged encounters with employees and to regulate their emotions, which is likely to negatively influence follower affect and arousal (Lewis, 2000),

which might ultimately negatively influence employees' performance. In this context, meta-analytical evidence reveals positive links between vulnerable sensitivity and neuroticism (Lionetti, Pastore, Moscardino, Nocentini, Pluess, & Pluess, 2019). In turn, further meta-analytical evidence shows that neuroticism is negatively related to transformational leadership (Bono & Judge, 2004), which is ultimately positively related to followers' task performance in another meta-analysis (Wang, Oh, Courtright, & Colbert, 2011). In sum, we expect, mainly due to negative crossover, that employees who are led by vulnerable-sensitive leaders show decreased task performance.

Hypothesis 2b: Leader vulnerable sensitivity negatively relates to employee task performance.

4.3.3 Crossover Effects between Employee and Leader Sensitivity

Having hypothesized how both employees' and leaders' levels of vantage and vulnerable sensitivity affect employee task performance, we argue that the (in-)congruence of these sensitivity types between leaders and employees leads to different task performance levels. Accordingly, we integrate both theoretical components of COR theory. Specifically, we argue that the enriched resources of the resource gain spiral, which vantage-sensitive individuals are disproportionately more likely to experience, are transmitted to their interaction partners by positive crossover. In turn, we argue that the depleted resources of the resource loss spiral, which is more likely to be experienced by vulnerable-sensitive individuals, are transmitted to their interaction partners by negative crossover.

A concrete example of an enriched resource that is transmitted from vantage-sensitive leaders to employees might be positive affect. Indeed, meta-analytical evidence demonstrates that vantage sensitivity is positively related to positive affect (Lionetti et al., 2019). In turn, another meta-analysis reveals that positive affect is positively related to task performance (Kaplan et al., 2009). Accordingly, we argue that the positive association of employee vantage

sensitivity with employee task performance is further increased when vantage-sensitive employees receive additional resources from their vantage-sensitive leaders. Furthermore, we argue that the negative association of employee vulnerable sensitivity with employee task performance is decreased when vulnerable-sensitive employees receive resources from their vantage-sensitive leaders. These two mechanisms may be based on the crossover of enriched resources (e.g., positive affect) by vantage-sensitive leaders to their followers, leading to higher resource levels for both vantage-sensitive and vulnerable-sensitive employees. For instance, a meta-analysis shows that transformational leaders with their inspirational motivation (cf. positive affect) enhance the performance of their followers (Wang et al., 2011). In this context, as positive affect is related to greater optimism (Forgas & George, 2001) and expectancy (Wegener & Petty, 1996), employees who experience positive affect may be more likely to select and complete challenging tasks. Furthermore, since employees who experience positive affect show effective problem-solving strategies (Elliott, Sherwin, Harkins, & Marmarosh, 1995) and utilize efficacious coping strategies (Judge, Thoresen, Pucik, & Welbourne, 1999), employees who are led by vantage-sensitive leaders may have the resources needed to show increased task performances. To summarize, when the leader's resources at work (e.g., positive affect) increase, the leader may be able to provide more support to the follower, resulting in an increase in the latter's task performance.

Hypothesis 3a: The higher an employee's vantage sensitivity and the higher a leader's vantage sensitivity, the better the employee's task performance.

Hypothesis 3b: The higher the leader's vantage sensitivity, the higher the task performance of an employee high in vulnerable sensitivity.

The depleted resources of the resource loss spiral, which vulnerable-sensitive individuals are more likely to experience than other individuals, might be transmitted to their interaction partners by negative crossover. A concrete example of a depleted resource that is

transmitted from vulnerable-sensitive leaders to employees might be negative affect. Indeed, meta-analytical evidence reveals that vulnerable sensitivity is positively related to negative affect (Lionetti et al., 2019). In turn, another meta-analysis demonstrates that negative affect is negatively related to task performance (Kaplan et al., 2009). Furthermore, vulnerable sensitivity is also meta-analytically related to higher neuroticism (Lionetti et al., 2019). Meanwhile, in their review of 15 meta-analyses regarding the relationship between personality and job performance, Barrick et al. (2001) show that emotional stability, (the inverse of neuroticism), is positively related to job performance. Accordingly, we argue that the negative association of employee vulnerable sensitivity with employee task performance is increased when vulnerable-sensitive employees are led by vulnerable-sensitive leaders. Furthermore, we argue that the positive association of employee vantage sensitivity with employee task performance is decreased when vantage-sensitive employees are led by vulnerable-sensitive leaders. These two mechanisms may be based on the crossover of depleted resources (e.g., negative affect) by vulnerable-sensitive leaders to their followers, leading to lower resource levels for both vantage-sensitive and vulnerable-sensitive employees. For instance, depleted leaders with increased symptoms of depression (cf. negative affect) show lower transformation leadership (Byrne et al., 2014); this, in turn, is positively related to employee job performance (Wang et al., 2011). Due to negative crossover from vulnerable-sensitive leaders to employees, the increased level of negative affect for both vantage-sensitive and vulnerable sensitive employees might be strongly associated with self-doubts that hinder the initiation of task activities and the setting of ambitious goals, which ultimately decreases employees' task performance (Kaplan et al., 2009). In sum, when the leader's resources at work (e.g., negative affect) decrease, the leader may be less able to provide support to the follower, resulting in a decrease in the latter's task performance.

Hypothesis 3c: The higher an employee's vulnerable sensitivity and the higher a leader's vulnerable sensitivity, the lower the employee's task performance.

Hypothesis 3d: The higher the leader's vulnerable sensitivity, the lower the task performance of an employee high in vantage sensitivity.

4.4 Method

4.4.1 Data Collection

The study was carried out among pairs of employees and leaders working at a diverse selection of organizations in Germany in 2017. All data were gathered by an online survey (168 dyads) or by a paper-and-pencil survey (51 dyads) distributed via private and work-related personal contacts and social networks of the second author and of a group of 13 multipliers, who provided the contact data for potential participants. The multipliers were advised to search solely for participants engaged in lawful employment. This technique provided access to a wide target population from all parts of Germany and resulted in a comparably large sample size (Atkinson & Flint, 2001). We distributed the surveys, along with a cover letter assuring confidentiality and voluntary participation, to all individuals and asked our contacts (leader or follower) to involve their follower or leader either by forwarding a link (online survey) or the printed version of the survey (paper-and-pencil survey) together with our cover letter. In the case of the online survey, to ensure respondents' anonymity and to prevent social desirability in answering, the website was fully administered by an independent expert agency that was under the authors' supervision. In the paper-and-pencil survey, all contacted persons received two addressed and stamped envelopes, so the responses were sent back by followers and leaders independently. In order to be able to link the responses provided by leaders and their followers, two questionnaires were always given identical numbers.

4.4.2 Sample Characteristics

A total of 219 dyads participated. Missing data on task performance led to the exclusion of two dyads. Missing data of control variables was imputed using the correspondent mean value. This yielded a total sample of 217 dyads for data analysis.

Among the employees, 138 (63%) were female; the mean age was 38.4 years (SD = 12.2). 30.9% of the employees (n = 67) had a university degree. Among the leaders, 79 (36%) were female. The mean age was 46.1 years (SD = 10.1). 52.5% of the leaders (n = 114) held a university degree. The participants covered a broad range of different professional activities (e.g. engineer, logistician, and architect) with an average professional experience of 17.5 years (SD = 13.3) for the employees and 23.8 years (SD = 11.4) for the leaders. Employees worked for their current employer for 8.9 years (SD = 9.3) while for leaders the figure was 12.4 years (SD = 8.0), on average. The leaders looked back on a leadership experience of 11.8 years (SD = 8.3) and their average dyadic tenure with their followers was 4.7 years (SD = 4.2).

4.4.3 Measures

Task Performance. This variable was measured using a five item-scale by Williams and Anderson (1991). We used the German translation by Staufenbiel and Hartz (2000). The item response format was a 5-point Likert scale anchored from one (fully disagree) to five (fully agree). Respondents were the leaders of each employee, thereby providing a supervisor-rated task performance of each employee. Sample items were “The employee adequately completes assigned duties” and “The employee performs tasks that are expected of him/her”. Cronbach’s alpha was 0.86.

Sensitivity. This variable was measured using the original 27-item Highly Sensitive Person Scale (HSPS) by Aron and Aron (1997). Translation/back-translation procedures (Brislin, 1980) were followed to translate the English-based measure into German. We

performed a confirmatory factor analysis that forced the extraction of two factors. The first factor (i.e., vulnerable sensitivity) encompasses 20 items. The second factor (i.e., vantage sensitivity) includes seven items. Cronbach's alpha of the total score of the HSPS was 0.87 for employees and 0.85 for leaders. Furthermore, Cronbach's alpha of leaders' vulnerable sensitivity was 0.89, 0.57 for leaders' vantage sensitivity, 0.88 for employees' vulnerable sensitivity, and 0.73 for employees' vantage sensitivity.

Control Variables. Following Zhang, Wang, and Shi (2012), who used polynomial regression to examine the relationship between proactive personality and job performance, we included the same control variables; namely age dissimilarity, gender similarity, education dissimilarity, and dyadic tenure. In line with previous research, dissimilarity in age and level of education was calculated as an absolute difference score (Bauer & Green, 1996). For gender similarity we applied a dummy variable (i.e., 0 = "different gender"; 1 = "same gender"). In addition, we included the dyadic tenure as well as the daily collaboration time of the leader and employee to control for the potential familiarity effect (Green, Anderson, & Shivers, 1996). Lastly, we controlled for the economic sector (i.e., 0 = "industry"; 1 = "service").

4.5. Results

Means, standard deviations, and correlation coefficients for all measures, including controls, are reported in Table 7.

Table 7: Descriptive statistics and correlations

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Employee Highly Sensitive Person Scale	3.04	0.53													
2. Leader Highly Sensitive Person Scale	2.80	0.48	.07												
3. Employee Vantage Sensitivity	3.76	0.58	.46**	-.07											
4. Leader Vantage Sensitivity	3.77	0.50	.08	.29**	.31**										
5. Employee Vulnerable Sensitivity	2.79	0.65	.96**	.11	.20**	-.01									
6. Leader Vulnerable Sensitivity	2.47	0.63	.08	.96**	-.15*	.02	.11								
7. Gender Similarity	0.61	0.49	-.06	.15*	-.01	.10	-.06	.13							
8. Age Dissimilarity	7.76	13.06	-.14*	.03	-.15*	-.02	-.11	.03	-.03						
9. Education Dissimilarity	1.04	2.06	.09	.12	.04	.13	.08	.08	-.07	-.05					
10. Dyadic Tenure	4.61	3.77	-.01	-.13	.09	-.14*	-.04	-.10	-.12	-.19**	.07				
11. Daily Collaboration Time	3.99	2.07	.03	-.01	-.03	.05	.04	-.02	.00	.00	.08	-.03			
12. Economic Sector	0.67	0.47	.01	.09	.04	.15*	.00	.05	.04	-.02	-.06	-.08	-.05		
13. Task Performance	4.41	0.64	-.03	-.15*	.30**	.31**	-.12	-.24**	.02	-.03	.10	.09	-.04	.12	

Note. n = 217 dyads. ** = p < .01; * = p < .05.

In order to test Hypotheses 1a and 1b, we used hierarchical regression analysis in SPSS (version 26) by including the control variables in the first step and the main variables in the second step (i.e. vantage sensitivity and vulnerable sensitivity of the employee). In support of Hypothesis 1a, the effect associated with employee vantage sensitivity and leader-rated task performance was positive and statistically significant (β = .36, p < .001). Furthermore, in support of Hypothesis 1b, the effect associated with employee vulnerable sensitivity and task performance was negative and statistically significant (β = -.20, p < .01). Table 8 summarizes the results.

Table 8: Employee vantage and vulnerable sensitivity and task performance

	Task Performance	
	Model 1	Model 2
Step 1: Control Variables		
Gender Similarity	0.05	0.04
Age Dissimilarity	0.00	0.00
Education Dissimilarity	0.03	0.03
Dyadic Tenure	0.02	0.01
Daily Collaboration Time	-0.01	-0.01
Economic Sector	0.18	0.16
Step 2: Predictors		
Employee Vantage Sensitivity		0.36***
Employee Vulnerable Sensitivity		-0.20**
R^2	.038	.154
ΔR^2		.116
F	1.365	4.724***

Note. n = 217 dyads. *** = p < .001; ** = p < .01; * = p < .05.

To test Hypotheses 2a and 2b, we used hierarchical regression analysis in SPSS (version 26) by including the control variables in the first step and the main variables in the second step (i.e. vantage sensitivity and vulnerable sensitivity of the leader). In support of Hypothesis 2a, the effect associated with leader vantage sensitivity and leader-rated employee task performance was positive and statistically significant (β = .39, p < .001). Furthermore, in support of Hypothesis 2b, the effect associated with leader vulnerable sensitivity and employee task performance was negative and statistically significant (β = -.26, p < .01). Table 9 summarizes the results.

Table 9: Leader vantage and vulnerable sensitivity and task performance

	Task Performance	
	Model 1	Model 2
Step 1: Control Variables		
Gender Similarity	0.05	0.06
Age Dissimilarity	0.00	0.00
Education Dissimilarity	0.03	0.03
Dyadic Tenure	0.02	0.02
Daily Collaboration Time	-0.01	-0.02
Economic Sector	0.18	0.13
Step 2: Predictors		
Leader Vantage Sensitivity		0.39***
Leader Vulnerable Sensitivity		-0.26**
R^2	.038	.187
ΔR^2		.149
F	1.365	5.966***

Note. n = 217 dyads. *** = p < .001; ** = p < .01; * = p < .05.

To test the crossover effects on task performance between the different sensitivity types of both leaders and employees in Hypotheses 3a-d, we used polynomial regression with response surface analysis (Shanock, Baran, Gentry, Pattison, & Heggestad, 2010). All variables were entered into the analysis in two steps: 1) control variables; 2) leader sensitivity type and employee sensitivity type. Tables 4 to 7 summarize the results. Furthermore, based on an Excel file provided by Shanock et al. (2010), we created the response surface models depicted in Figures 6 to 9.

Hypothesis 3a suggests a positive congruence effect between leader and employee vantage sensitivity and employee task performance. As shown in Table 10, the slope along the congruence (E = L) line shows a significant positive effect, thereby supporting Hypothesis 3a (i.e., .63, $p < .05$). Accordingly, Figure 6 shows that employee task performance is highest when vantage sensitivity is high among both leaders and employees.

Figure 6: Employee and leader vantage sensitivity and task performance

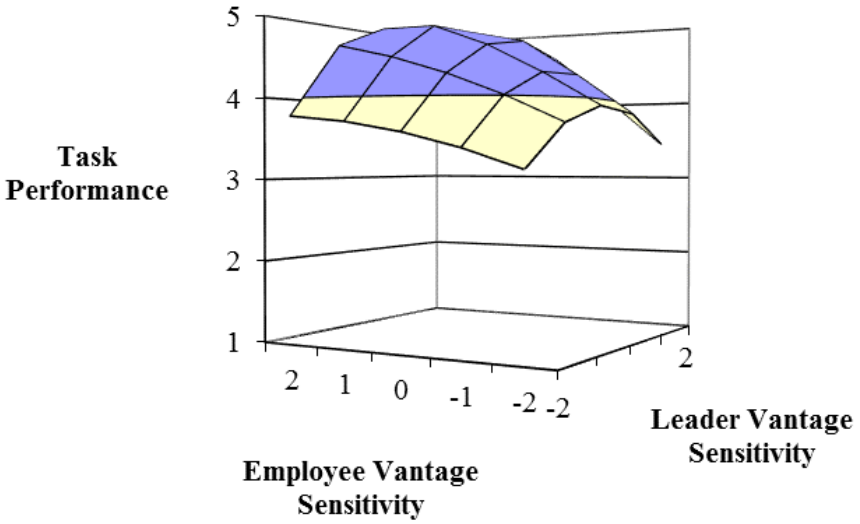


Table 10: Employee and leader vantage sensitivity and task performance

	Task Performance	
	Model 1	Model 2
Step 1: Control Variables		
Constant	5.12***	4.72***
Gender Similarity	0.08	0.05
Age Dissimilarity	0.00	0.00
Education Dissimilarity	0.05*	0.03
Dyadic Tenure	0.01	0.02
Daily Collaboration Time	-0.01	-0.01
Economic Sector	0.19*	0.13
Employee Vulnerable Sensitivity	-0.11	-0.15*
Leader Vulnerable Sensitivity	-0.25***	-0.21**
Step 2: Predictors		
Employee Vantage Sensitivity (E)		0.35**
Leader Vantage Sensitivity (L)		0.28
E^2		-0.03
E x L		0.10
L^2		-0.03
Congruence (E = L) Line		
Slope		0.63*
Curvature		-0.08
Incongruence (E = -L) Line		
Slope		-0.08
Curvature		-0.28
R^2	.113	.237
ΔR^2		.124
F	3.300**	4.839***

Note. n = 217 dyads. *** = p < .001; ** = p < .01; * = p < .05.

Hypothesis 3b suggests a positive incongruence effect of leader vantage sensitivity and employee vulnerable sensitivity on task performance. As shown in Table 11, the slope along the incongruence (E = -L) line shows a positive, but only marginally significant effect (i.e., .45, p = .076), and, thus, does not provide clear statistical evidence for Hypothesis 3b. Nevertheless, as expected, Figure 7 shows that the task performance of an employee high in vulnerable sensitivity is greater with higher levels of leader's vantage sensitivity.

Figure 7: Employee vulnerable and leader vantage sensitivity and task performance

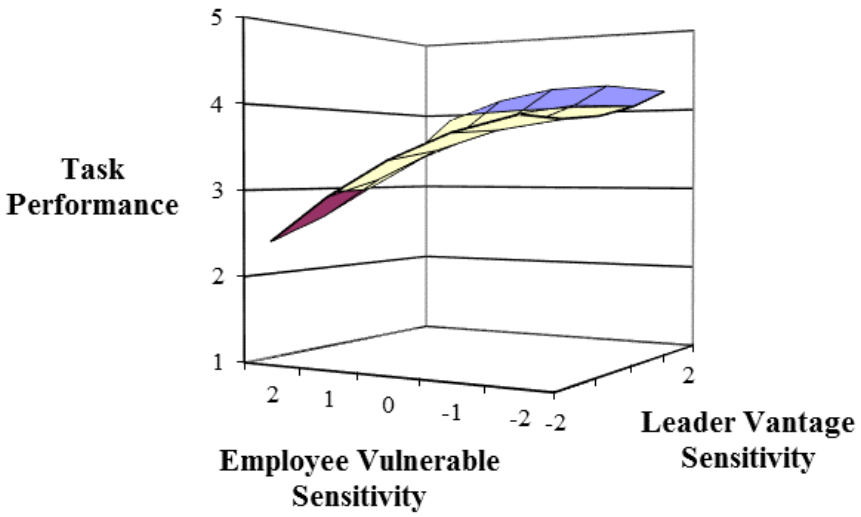


Table 11: Employee vulnerable and leader vantage sensitivity and task performance

	Task Performance	
	Model 1	Model 2
Step 1: Control Variables		
Constant	3.68***	3.66***
Gender Similarity	0.09	0.05
Age Dissimilarity	0.00	0.00
Education Dissimilarity	0.04	0.03
Dyadic Tenure	0.01	0.02
Daily Collaboration Time	-0.01	-0.01
Economic Sector	0.18	0.14
Employee Vantage Sensitivity	0.28***	0.23**
Leader Vulnerable Sensitivity	-0.22**	-0.21**
Step 2: Predictors		
Employee Vulnerable Sensitivity (E)		-0.21
Leader Vantage Sensitivity (L)		0.24
E^2		-0.06
E x L		0.04
L^2		0.07
Congruence (E = L) Line		
Slope		0.03
Curvature		0.05
Incongruence (E = -L) Line		
Slope		0.45+
Curvature		-0.08
R^2	.131	.186
ΔR^2		.055
F	5.053***	4.789***

Note. n = 217 dyads. *** = p < .001; ** = p < .01; * = p < .05, + = p < .10.

Hypothesis 3c proposes a negative congruence effect of leader and employee vulnerable sensitivity on task performance. As shown in Table 12, the slope along the congruence (E = L) line shows a negative effect that is not statistically significant, thereby refuting Hypothesis 3c (i.e., -.23, p = .116). Nevertheless, Figure 8 shows that– as expected – task performance is lower when a leader is aligned with an employee at a high level of vulnerable sensitivity rather than when a leader is aligned with an employee at a low level of vulnerable sensitivity.

Figure 8: Employee and leader vulnerable sensitivity and task performance

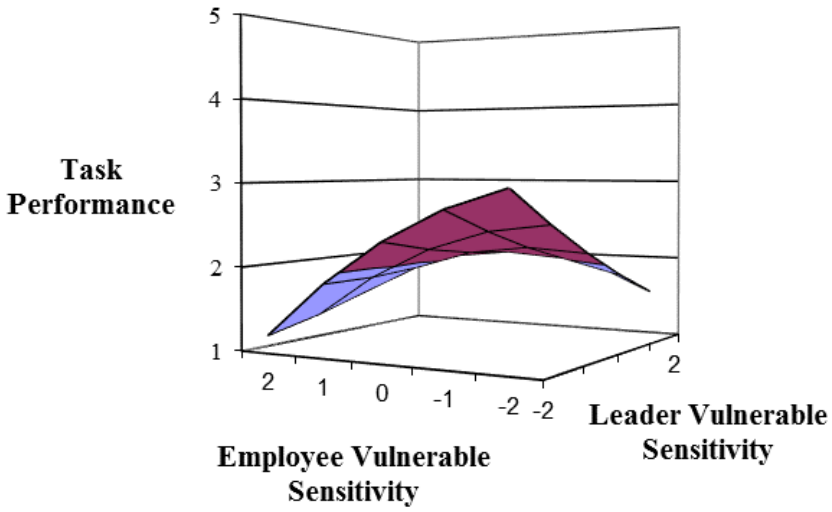


Table 12: Employee and leader vulnerable sensitivity and task performance

	Task Performance	
	Model 1	Model 2
Step 1: Control Variables		
Constant	2.21***	2.13***
Gender Similarity	0.02	0.05
Age Dissimilarity	0.00	0.00
Education Dissimilarity	0.02	0.03
Dyadic Tenure	0.02	0.01
Daily Collaboration Time	-0.01	-0.01
Economic Sector	0.12	0.14
Employee Vantage Sensitivity	0.24**	0.25**
Leader Vantage Sensitivity	0.31**	0.27**
Step 2: Predictors		
Employee Vulnerable Sensitivity (E)		-0.16
Leader Vulnerable Sensitivity (L)		-0.08
E^2		-0.07
E x L		0.14
L^2		0.02
Congruence (E = L) Line		
Slope		-0.23
Curvature		0.10
Incongruence (E = -L) Line		
Slope		0.08
Curvature		-0.19
R^2	.125	.194
ΔR^2		.074
F	5.137***	5.001***

Note. n = 217 dyads. *** = p < .001; ** = p < .01; * = p < .05.

Hypothesis 3d proposes a negative incongruence effect of leader vulnerable sensitivity and employee vantage sensitivity on task performance. As shown in Table 13, the slope along the incongruence (E = -L) line shows a significant negative effect, thereby supporting Hypothesis 3d (i.e., -.36, $p < .05$). Accordingly, Figure 9 shows that task performance of an employee high in vantage sensitivity is highest when his or her leader's level of vulnerable sensitivity is low, and lower under the leadership of a moderately to highly vulnerable-sensitive leader.

Figure 9: Employee vantage and leader vulnerable sensitivity and task performance

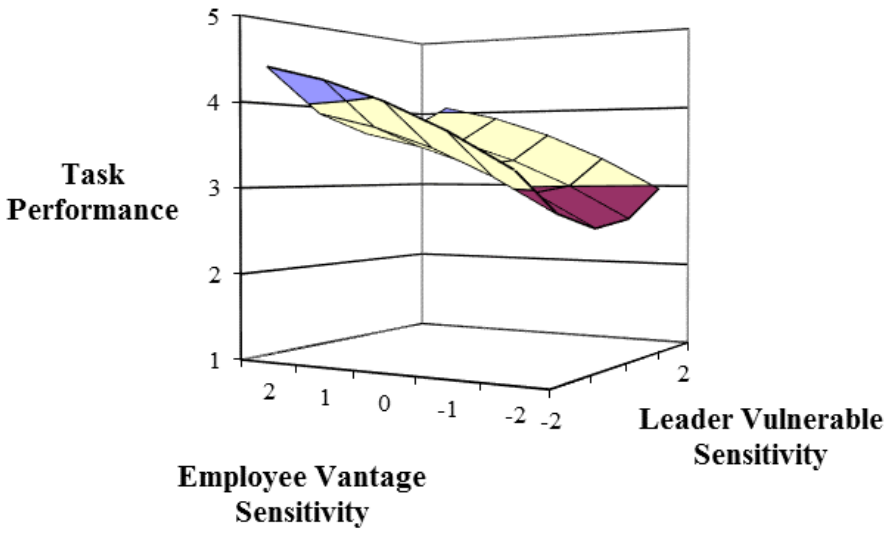


Table 13: Employee vantage and leader vulnerable sensitivity and task performance

	Task Performance	
	Model 1	Model 2
Step 1: Control Variables		
Constant	3.13***	3.26***
Gender Similarity	0.00	0.05
Age Dissimilarity	0.00	0.00
Education Dissimilarity	0.02	0.03
Dyadic Tenure	0.02	0.01
Daily Collaboration Time	-0.01	-0.01
Economic Sector	0.12	0.13
Employee Vulnerable Sensitivity	-0.12	-0.15*
Leader Vantage Sensitivity	0.39***	0.29**
Step 2: Predictors		
Employee Vantage Sensitivity (E)		0.29**
Leader Vulnerable Sensitivity (L)		-0.07
E^2		-0.04
E x L		0.14
L^2		0.00
Congruence (E = L) Line		
Slope		0.21
Curvature		0.10
Incongruence (E = -L) Line		
Slope		-0.36*
Curvature		0.10
R^2	.140	.241
ΔR^2		.101
F	4.246***	4.966***

Note. n = 217 dyads. *** = p < .001; ** = p < .01; * = p < .05.

4.6 Discussion

The empirical results show that whereas both employee and leader vantage sensitivity relate to increased leader-rated employee task performance, employee and leader vulnerable sensitivity are associated with decreased task performance. Moreover, integrating important aspects of COR theory (i.e., corollaries 1-3 and crossover effects) in an innovative manner, our results shed light on the complex interplay of different levels of vantage and vulnerable sensitivity in leaders and employees and their relationship to employee task performance. The results highlight that a combination of highly vantage sensitive leaders and followers seems to be most beneficial for employee task performance. Furthermore, whereas vantage-sensitive leaders enhance the performance of vulnerable-sensitive employees, vulnerable-sensitive leaders decrease the performance of vantage-sensitive employees.

4.6.1 Theoretical Implications

Our study contributes in four meaningful ways; it contributes to the task performance literature, to the person-situation debate, to the empirical evidence for COR theory, and to the sensitivity literature.

Task Performance Literature. One of the main purposes of this research was to explore whether neurosensitivity may serve as a promising, new predictor of task performance. The results show that vantage sensitivity does indeed appear to be a promising predictor of increased task performance, which is in line with meta-analytical evidence that vantage-sensitive children show the best educational outcomes (cf. Slagt et al., 2016). On the other hand, vulnerable sensitivity also seems to be a predictor of decreased task performance, which is also in line with meta-analytical evidence to the effect that vantage-sensitive children have the worst educational outcomes (cf. Slagt et al., 2016). Interestingly, the positive relationship of vantage sensitivity with task performance is higher than the negative relationship of vulnerable sensitivity with

task performance, which is in line with an interesting pattern of empirical evidence regarding predictors of task performance. On the one hand, meta-analytical evidence shows that positive affect, which is related with vantage sensitivity, has a stronger positive relationship with task performance compared to the negative relationship of negative affect (Kaplan et al., 2009), which is related to vulnerable sensitivity. On the other hand, "recent meta-analyses suggest that the favorable impact of job satisfaction and work engagement on job performance is stronger than the unfavorable impact of burnout" (Demerouti et al., 2014: 96). In this context, vantage sensitivity might be more strongly related to job satisfaction and work engagement, whereas vulnerable sensitivity might be more strongly related to burnout (Evers et al., 2008), though further research is necessary to confirm this. Furthermore, the present findings that vantage sensitivity is a predictor of task performance is in line with the conceptual roots of the notion of 'vantage sensitivity'. In this context, Pluess and Belsky state that "vantage is short for advantage, but in addition to implying benefit, gain or profit, it is also defined as a position, condition, or opportunity that is likely to provide superiority or an advantage" (2013: 903). In sum, with neurosensitivity, the present study introduces a novel, promising predictor of task performance.

Person-Situation Debate. For decades now, organizational scholars have been debating whether an individualist perspective on persons or an interactionist perspective on situations is more suitable when explaining individual job outcomes (e.g., Judge & Zapata, 2015; Stewart & Barrick, 2004). Our examination integrates both perspectives by focusing on the individual sensitivity types (i.e., individualist perspective) and the dyadic relationships between different sensitivity types (i.e., interactionist perspective). Interestingly, our findings support both perspectives. Specifically, our results show that the extent of an employee's vantage sensitivity or vulnerable sensitivity is robustly related to her or his task performance. At the same time, a

leader's vantage sensitivity or vulnerable sensitivity is also robustly associated with employees' task performance by either lifting the specific employee up or pulling them down.

COR Theory. Hobfoll's COR theory provides concrete theoretical explanations as to why both the individualist and the interactionist perspective are suitable approaches for explaining task performance in the light of neurosensitivity. In the context of the individualist perspective, highly sensitive employees seem to be especially responsive to resource gain and resource loss spirals, which is consistent with the differential susceptibility perspective on highly sensitive persons (Belsky & Pluess, 2009). Accordingly, our results emphasize that vantage sensitivity seems to be associated with resource gain spirals, whereas vulnerable sensitivity seems to be associated with resource loss spirals. This contribution to COR theory could be substantial, because though gain and loss spirals are prominent parts of latest understandings of COR theory (Hobfoll et al., 2018), empirical evidence regarding these two opposite spirals remain scarce. In the context of the interactionist perspective, highly sensitive employees seem to be especially responsive to both the positive crossover effects of vantage-sensitive leaders and the negative crossover effects of vulnerable-sensitive leaders, which is also consistent with the differential susceptibility perspective on highly sensitive persons (Belsky & Pluess, 2009). Accordingly, since highly sensitive persons are more empathetic (Acevedo et al., 2014), our results support Westman's (2001) proposition that empathy acts as a direct crossover of psychological states. This is another important contribution to COR theory, because the crossover model is a new part of COR theory proposed by Hobfoll et al. (2018), which has only recently has received empirical support (e.g., Guan & Frenkel, 2019).

Sensitivity Literature. Sensitivity scholars have only recently begun to emphasize that one ought to distinguish between different sensitivity types (cf. e.g., Bridges & Schendan, 2019b; Pluess, 2015). Our results indicate that employee task performance is differently related with vantage and vulnerable sensitivity. Specifically, vantage sensitivity is positively related

and vulnerable sensitivity is negatively related to employee task performance. Consequently, exclusively labeling humans as highly sensitive seems too imprecise. Rather, differentiating between vulnerable-sensitive and vantage-sensitive individuals appears to be more accurate. Furthermore, after examining neurosensitivity with work stress (Evers et al., 2008), expatriates' turnover intentions (Andresen et al., 2018), and entrepreneurial intentions (Harms et al., 2019), the present study is the first that explores neurosensitivity with a specific work behavior such as task performance.

4.6.2 Practical Implications

We see at least three specific practical implications of the present study. First especially in dyads where leaders and employees show high levels of vantage sensitivity, vantage sensitivity seems to be related to high levels of task performance. Consequently, human resource managers may screen new leaders and employees for their pronouncement of vantage sensitivity. Second, since leaders have a multiplicative effect in organizations, one might argue that qualified vantage-sensitive individuals with the potential to assume leadership positions should be consciously selected as leaders. Third, though the manifestation of vantage sensitivity is strongly affected by childhood experiences, sensitivity research also indicates that mindfulness promotes vantage sensitivity (cf. e.g., Bakker & Moulding, 2012; Soons et al., 2010). Since mindfulness can be trained by techniques such as meditation or yoga (Good et al., 2016), human resource managers may promote mindfulness training at work by offering specific courses, creating silent spaces where contemplative techniques can be applied appropriately, and/or create a culture that values mindfulness. With regard to the promotion of vantage sensitivity, we expect that health management will play a critical role in future organizations.

4.6.3 Limitations and Implications for Future Research

The cross-sectional design of our data collection makes it difficult to infer causality from neurosensitivity to task performance. However, as Chiaburu, Oh, Berry, Li, and Gardner state, "it is unlikely though for […] behaviors […] to cause personality traits, which are relatively stable and heritable" (2011: 1151). The remaining question to be addressed in future research is whether vantage sensitivity causes higher *factual* task performance or whether, instead, more positive performance *attributions* by leaders. On the one hand, higher factual performance could be traced back to vantage-sensitive employees' heightened receptivity to beneficial effects of interventions by their leader (cf. de Villiers, Lionetti, & Pluess, 2018; Nocentini, Menesini, & Pluess, 2018; Pluess & Boniwell, 2015). On the other hand, leaders' errors of observation and assessment could occur because vantage-sensitive leaders might be more sensitive to their followers' positive achievements and vantage-sensitive employees might display a more positive emotional reactivity to successes (cf. Lionetti et al., 2018). These two effects might induce positively biased performance evaluations by their leaders, also in view of their higher positive affectivity. Furthermore, our results show that leader vantage and vulnerable sensitivity have significant influences on employee task performance. Despite this, what the concrete mechanisms of these relationships are and how they work remains largely unknown. Therefore, promising mediating factors might be leader-member exchange (Martin, Guillaume, Thomas, Lee, & Epitropaki, 2016) or transactional and transformational leadership (Bono & Judge, 2004). Lastly, for general organizational research, we recommend that explore other work behaviors, such as organizational citizenship behaviors or innovative behavior, ought also to be explored. In this context, we expect similar patterns as with the relation between neurosensitivity and task performance; namely that these behaviors are also positively related to vantage sensitivity and negatively related to vulnerable sensitivity. Accordingly, we expect

that vantage sensitivity is associated with COR theory's resource caravans (cf. Hobfoll et al., 2018).

5 Overall Discussion

This final chapter presents an overview of the dissertation and its findings, discusses the main theoretical and practical implications of the three studies, and addresses the limitations of the present study, as well as opportunities for future research.

5.1 Thesis Summary

The overall aim of the present dissertation was to explore neurosensitivity with business-relevant behaviors. To achieve this goal, three studies were conducted.

Study 1 was a theoretical-conceptual examination that answered the question of how neurosensitivity is related to organizational ambidexterity and organizational social capital. Based on ambidexterity theory (Raisch & Birkinshaw, 2008), the study proposes that neurosensitivity is positively related to explorative behavior and negatively related to exploitative behavior. Accordingly, in order to achieve organizational ambidexterity, I argued that firms require a workforce with a wide range of sensitivity levels. Moreover, based on social capital theory (Adler & Kwon, 2002), study 1 suggests that neurosensitivity is positively related to donoring social capital and negatively related to capturing social capital. Therefore, as with organizational ambidexterity, in order to achieve high levels of (internal and external) organizational social capital, it can be expected that firms need a sensitivity-diverse workforce.

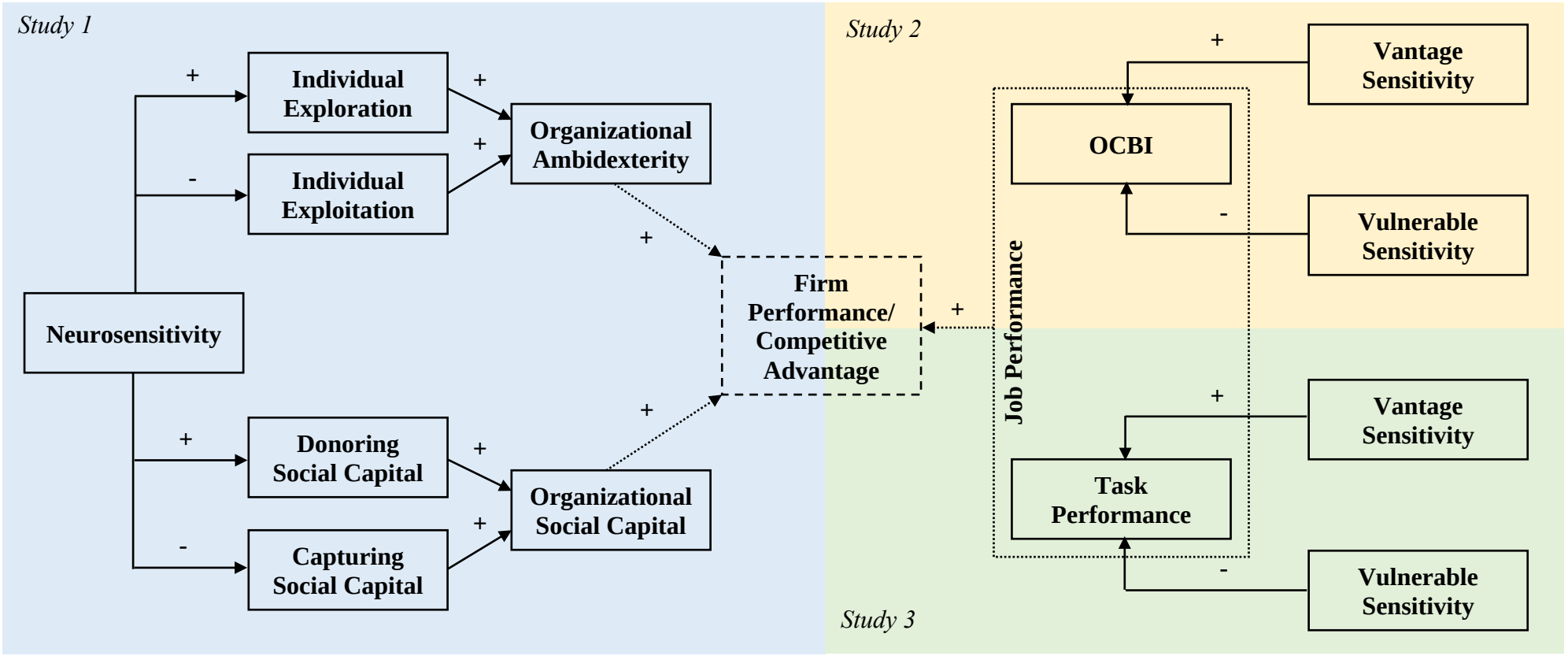
Study 2 was an empirical-quantitative examination that answered the question of how is neurosensitivity related to organizational citizenship behavior that is directed to individuals (OCBI) and to what extent work conditions affect this relationship. Drawing on conservation of resources (COR) theory (Hobfoll et al., 2018), the results of 322 online survey participants largely supported the hypotheses by showing that vantage sensitivity leads to increased OCBI, while vulnerable sensitivity leads to decreased OCBI. In addition, while low-sensitivity employees are only marginally affected by work conditions (e.g., noise and room climate), sensitive employees' engagement in OCBI is greatly affected by working conditions in a for-better-and-for-worse manner.

Study 3 was an empirical-quantitative examination that answered the question of how neurosensitivity and – more specifically – employee and leader vantage sensitivity and employee and leader vulnerable sensitivity relate to employee task performance. Drawing on conservation of resources (COR) theory, and based on 217 German leader-follower dyads, the results show that employee and leader vantage sensitivity is related to increased leader-rated employee task performance, whereas employee and leader vulnerable sensitivity is related to decreased employee task performance. Moreover, polynomial regression and response surface analysis show that the comparably highest performance levels are reached by vantage-sensitive dyads. Furthermore, whereas vantage-sensitive leaders enhance the performance of vulnerable-sensitive employees, vulnerable-sensitive leaders decrease the performance of vantage-sensitive employees.

Figure 10 provides an overview of the three studies and their relationship with different constructs. The common denominator is that all studies are indirectly related to firm performance and competitive advantage, which is fundamental to management research (Barney, 1991). Moreover, this overview of the three studies implies two – contradictory – at first sight at least - perspectives. On the one hand, study 1 proposes that the diversity of

neurosensitivity and, thus, neurodiversity, can serve as a source of competitive advantage. On the other hand, studies 2 and 3 suggest that vantage sensitivity can serve as a source of competitive advantage. However, I argue that – on closer examination – these two perspectives do not have to be contradictory. Consequently, the crucial question is not whether a person shows high or low levels of sensitivity, but rather whether that person is able to realize the potential of his or her vantage sensitivity level.

Figure 10: Neurodiversity as a competitive advantage (study 1) vs. vantage-sensitivity as a competitive advantage (studies 2 & 3)



5.2 General Theoretical Implications

From an overall perspective, the present dissertation provides two major theoretical contributions to management research on the one hand and psychology - specifically, sensitivity research, on the other.

From a management perspective, the question, as to which company resources serve as sources of competitive advantage and, thus, boost performance, is key (Barney, 1991). In this context, all three studies examine business-relevant outcomes that are related to firm performance and thus competitive advantage. Study 1 conceptually links neurosensitivity with organizational ambidexterity and organizational social capital, both of which have been found to be related to firm performance and competitive advantage (Nahapiet & Ghoshal, 1998; Raisch & Birkinshaw, 2008). Studies 2 and 3 empirically show that there is a positive relationship between vantage sensitivity and job performance (i.e., OCBI and task performance). In turn, job performance is widely seen as a predictor of firm performance and, thus, competitive advantage (Crook et al., 2011). Therefore, the present dissertation contributes to the long-standing search for human sources of competitive advantage (Wright, McMahan, & McWilliams, 1994). In this context, the microfoundations perspective connects such micro sources of competitive advantage with macro outcomes on the company level.

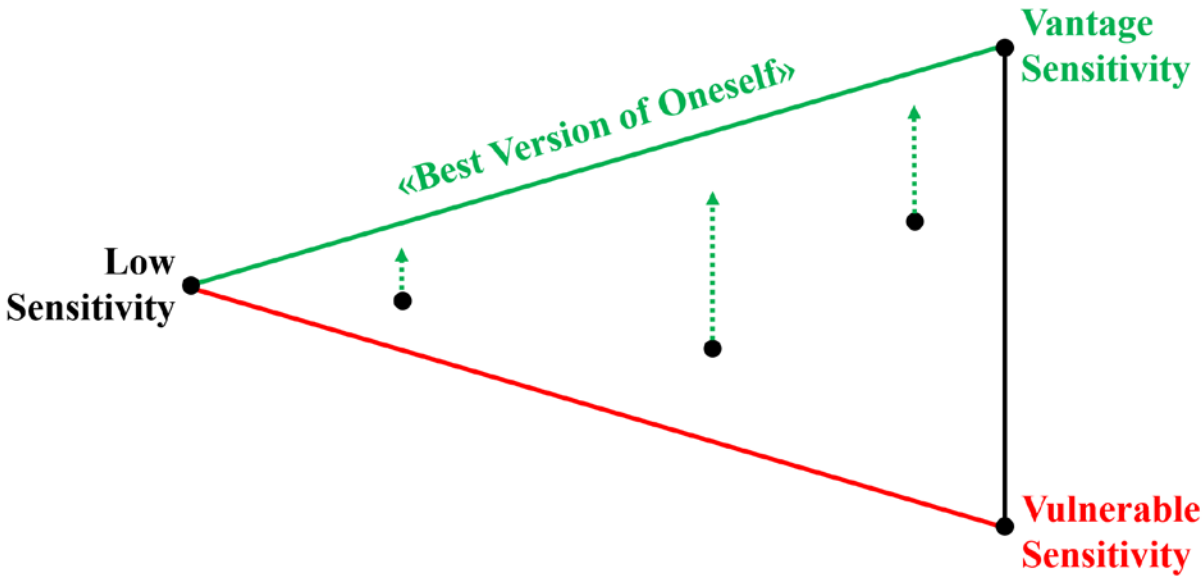
Microfoundations can be defined as “foundations that are rooted in individual action and interaction” (Foss, 2011: 1414). It is important to note that micro-level mechanisms (e.g., interactions between different sensitivity levels/types) evolve in an interactive manner, resulting in aggregated macro-level outcomes (e.g., firm performance). In this context, I see important implications for management research. First, the present dissertation has the potential to further foster the rise of microfoundational research. Accordingly, because neurosensitivity is a fundamental, multispecies trait (Pluess, 2015), research into microfoundations cannot

ignore the recent interdisciplinary findings on neurosensitivity. In this context, Felin and Foss' (2011) remarkable poverty of stimulus argument, which emphasizes that organizational capabilities and routines have endogenous origins in individuals, actually intuitively refers to the existence of neurosensitivity, thereby implicitly highlighting the importance of neurosensitivity for the microfoundations movement. Second, the present dissertation could stimulate and revitalize research on the sources of (sustained) competitive advantage, which represents a major topic in strategic management (Barney, 1991). Therefore, whereas it can be assumed that all sensitivity levels can be valuable in the right context, both extremes of the normally distributed neurosensitivity continuum may represent individuals with relatively rare characteristics. However, the most functional highly sensitive and, thus, vantage-sensitive employees may be truly rare. Furthermore, since the person-environment fit is expected to be highly relevant where the functionality of highly sensitive employees is concerned, Barney's (1991) third criterion of imperfectly imitable resources also seems to be fulfilled. Thus, it can be stated that vantage sensitivity has the potential to serve as a source of sustained competitive advantage. However, the theoretical implications of studies 2 and 3 regarding vantage sensitivity are somewhat different to study 1 as far as neurodiversity is concerned.

Whereas study 1 implicitly claims that neurodiversity (i.e., the diversity of neurosensitivity) can be a source of competitive advantage, studies 2 and 3 implicitly claim that vantage sensitivity (i.e., the bright of neurosensitivity) can be a source of competitive advantage. While, at first sight, these two perspectives seem to be contradictory, when the two perspectives are integrated based on Pluess' (2015) sensitivity types, it can be argued that the 'ideal organization' consists of members with different sensitivity levels who have reached their highest possible levels in vantage sensitivity (i.e., green line in Figure 11). Consequently, the key question is not how neurosensitive the members of an organization are, but rather how pronounced their levels of vantage sensitivity is. In other words, the key question is how

employees can realize their full potential of vantage sensitivity (i.e., "becoming the best version of oneself"). Figure 11 highlights that the more sensitivity genes are present, the higher the individual potential for both vulnerable and vantage sensitivity. In this context, reaching the best version of oneself seems to be most desirable from both an individual and organizational perspective. Consequently, I imagine future organizations that promote the highest possible vantage sensitivity levels among their workforces. For instance, the emerging trend for purpose-driven organizations can be seen as a first important step in such a direction.

Figure 11: Becoming the best (vantage sensitivity) version of oneself



From a psychological perspective, the present dissertation substantially contributes to sensitivity research by challenging some basic assumptions of sensitivity research. First, sensitivity scholars implicitly assume that the most important differentiator within sensitivity research is the individual sensitivity level. However, studies 2 and 3 strikingly demonstrate that the differentiation between Pluess' (2015) sensitivity types of vantage sensitivity and vulnerability/vulnerable sensitivity is key when examining neurosensitivity with concrete work behaviors. Since some sensitivity scholars have only recently begun to emphasize the need to

distinguish between different sensitivity types (cf. e.g., Bridges & Schendan, 2019b; Pluess, 2015), the present dissertation substantially contributes to this research gap. Second, after examining neurosensitivity with work stress (Evers et al., 2008), expatriates' turnover intentions (Andresen et al., 2018), and entrepreneurial intentions (Harms et al., 2019), the present dissertation offers first studies that explore neurosensitivity together with a specific work behavior, such as task performance or OCBI. Third, sensitivity scholars implicitly assume that the Highly Sensitive Person (HSP) Scale operationalizes general sensitivity and that, therefore, it is in balance with vantage sensitivity and vulnerable sensitivity. The 27-item Highly Sensitive Person Scale was introduced as a unidimensional scale by Aron and Aron (1997). However, scholars have for the most part reported either a three-factor (cf. e.g., Smolewska et al., 2006; Sobocko & Zelenski, 2015) or a two-factor solution (c.f. e.g., Evans & Rothbart, 2008; Tillmann et al., 2018). Most recently, Bridges and Schendan (2019b) integrated these approaches by claiming that two factors of the three-factor solution actually refer to one factor (i.e., negative affect) and that the remaining factor of the three-factor solution is equal to the second factor of their two-factor solution (i.e., orienting sensitivity). Based on Pluess' (2015) theoretically founded and empirically supported sensitivity types, with vantage sensitivity and vulnerable sensitivity, and in line with recent reflections of various sensitivity scholars (cf. e.g., Bridges & Schendan, 2019b; Homberg et al., 2016), I claim that the first factor actually refers to vulnerable sensitivity while the second factor actually refers to vantage sensitivity. This understanding sheds new light on existing empirical evidence in sensitivity research, which, obviously, is strongly biased toward vulnerable sensitivity. This nuanced understanding contributes to a more balanced view on the bright and the dark side of neurosensitivity.

5.3 General Practical Implications

In this section, the general practical implications of the present dissertation are discussed. I have identified a number of promising new opportunities for talent management, health care management and personnel recruitment and development, among others.

Popular science books on high sensitivity often emphasize that highly sensitive people have great potential. The empirical results on vantage sensitivity, in which the bright side of increased neurosensitivity predominates, confirm this thesis. Vantage sensitivity shows consistently significant positive effects with various business-relevant behaviors, such as organizational citizenship behavior and task performance. As a result, vantage-sensitive employees and leaders appear to be particularly valuable for companies. These empirical results are consistent with the conceptual-theoretical understanding of vantage sensitivity. The term “vantage” stands for “advantage” or “a position, condition or opportunity that is likely to offer superiority or an advantage” (Houghton Mifflin, 2000; as cited by Pluess & Belsky, 2013: 903). In this sense, the targeted recruitment of vantage-sensitive individuals could be of great interest to companies. In addition, in the context of talent management and performance management, identifying, training, and appointing vantage-sensitive employees and leaders to specific roles certainly seems worthy of consideration .

The detection of different sensitivity types could prove valuable for human resource management in general. In the context of employees, the Highly Sensitive Person Scale self-report measure by Aron and Aron (1997) may be valuable. However, it is important to differentiate between the bright side of neurosensitivity (i.e., vantage sensitivity as operationalized by the sub factor ‘aesthetic sensitivity’; Smolewska et al., 2006) and the dark side of neurosensitivity (i.e., vulnerable sensitivity as operationalized by the two sub factors ‘low sensory threshold’ and ‘ease of excitation’; Smolewska et al., 2006). In the context of

leaders and key employees, besides the Highly Sensitive Person Scale, assessment centers could also prove valuable. Specifically, evaluators might estimate the positive affect (cf. vantage sensitivity), the negative affect (cf. vulnerable sensitivity and the lack of both (cf. low sensitivity). Moreover, it might also be important that the evaluators register and process environmental stimuli themselves in a heightened manner and – in the best case scenario – are themselves vantage-sensitive, in order to be in a position to make such subtle observations.

Since vantage sensitivity goes hand in hand with increased business-related performance, the question that arises is whether vantage sensitivity can still be developed in adulthood. Unfortunately, sensitivity research has not yet found the answer to this question. Nevertheless, there are first indications that this could be possible. For example, Pluess and Belsky stated the following: "The effectiveness of existing psychological interventions and services could be increased drastically if interventions aim to promote vantage sensitivity" (2013: 912). In this context, some initial studies have shown the special importance of mindfulness for highly sensitive people. It is also accepted that mindfulness is a skill that can be trained and developed (Good et al., 2016). One sensitivity study shows that highly sensitive people who participated in an eight-week Mindfulness Based Stress Reduction (MBSR) program showed significantly less stress, social anxiety and more empathy on completion of the course (Soons et al., 2010). If vantage sensitivity could actually be developed in a targeted manner, I believe that this would open up promising new opportunities for personnel development and health management.

The conscious deployment of different sensitivity types could also prove valuable for human resource management in general. In the context of vantage-sensitive employees and leaders, it can be expected that such individuals are rare. Therefore, it seems logical to select especially important roles for these vantage-sensitive individuals who show increased performance. In the context of vulnerable-sensitive employees, it might be worth appointing

these individuals to roles that are not overly critical, but which nevertheless demand a careful approach. This is because, especially when the environment is supportive (cf. working conditions of study 2), I expect that vulnerable-sensitive employees will be particularly loyal and committed. Furthermore, as discussed above, vulnerable-sensitive employees may still have the potential to enhance their vantage sensitivity. In the context of low-sensitivity employees, it might be worth selecting these individuals for roles that require stable but not extraordinary performance (cf. dandelions of the following flower metaphor).

In sensitivity research, less sensitive people are referred to as dandelions while highly sensitive people are referred to as orchids (Lionetti et al., 2018). Less sensitive people are less susceptible to negative and positive influences, as a dandelion thrives relatively independently of environmental influences. At the same time, the blossoming dandelion - at least in our German-speaking cultures - is very common and, as such, is not very special. Highly sensitive people, on the other hand, are more sensitive to both negative and positive influences. In the right conditions, however, orchids bloom in particular beauty. In this context, the results of the present dissertation show that the reduced organizational citizenship behavior of vulnerable-sensitive employees is even slightly increased if the working conditions are conducive. In my opinion, this fact may prove extremely interesting for the health and performance management of organizations. In this context, individual or small group offices appear to be particularly promising as an alternative to open-plan offices, in particular when the objective is to substantially increase the task performance of highly sensitive employees. In addition, highly sensitive employees could be particularly well-suited to home office solutions , as this situation normally offers far greater control over the most beneficial working conditions than open-plan offices.

As shown in study 3, vantage-sensitive leaders significantly increase the task performance of their followers. It is therefore important for the selection of managers to

recognize the vantage sensitivity of leaders (e.g. through assessments). Remarkably, vantage-sensitive employees show top performance when they receive additional resources from vantage-sensitive leaders in addition to their increased internal resources. As mentioned briefly, these empirical results are extremely interesting for talent management. The identification, development and retention of vantage-sensitive employees and leaders could be of great interest for companies. As Fischer's award-winning master's thesis proposes, this significance could become even greater in the digitalized world of work 4.0 (Fischer, 2020).

In the context of the increased leadership quality of vantage-sensitive leaders, it is also remarkable that the reduced task performance of vulnerable-sensitive employees can be substantially increased by vantage-sensitive leaders. It appears that vantage-sensitive leaders have the skills and resources to make various employees more productive. In this context, reference should be made to the summarizing results of Panetta's master's thesis, which was published by Springer: “The study shows that highly sensitive leaders have special empathetic skills and a special leadership style that make them primarily dependent on the mood of a situation. They are aware of moods physically and act accordingly” (Panetta, 2017). This intuitive-situational leadership style might be leveraged, when vantage-sensitive leaders’ awareness of their unique leadership style is increased by leadership trainings.

5.4. General Limitations and Future Research Opportunities

The following sections outline the general limitations of this dissertation and discusses areas for promising future research.

Thus far, management scholars examined only psychological states of neurosensitivitiy (cf. Andresen et al., 2018; Harms et al., 2019). The present dissertation takes the research one

step further by conceptually and empirically linking neurosensitivity with business-relevant behaviors. However, although these business-relevant behaviors are indirectly related to firm-level outcomes, such as firm performance, the present dissertation does not include any direct examination of neurosensitivity with firm-level outcomes, which is key for management research (Barney, 1991). However, the empirical-quantitative examination of leader-employee dyads and their various sensitivity types in study 3 and the conceptual-theoretical examination of neurodiversity with organizational ambidexterity and social capital in study 1 can be seen as an important first step toward such firm-level outcomes. Therefore, future management research should explore neurosensitivity on the team level and/or on the organizational level using both qualitative and quantitative approaches.

For general organizational research, I recommend that neurosensitivity be examined with other work behaviors. For instance, innovative behavior could be a promising neurosensitivity-related behavior, since neurosensitivity is positively related to creativity (Bridges & Schendan, 2019b). In this context, I expect similar patterns to those seen for the links between neurosensitivity and job performance (i.e., OCBI and task performance); namely that various work behaviors are also positively related to vantage sensitivity and negatively related to vulnerable sensitivity. In this context, I expect that vantage sensitivity is associated with COR theory's resource caravans (cf. Hobfoll et al., 2018).

From a general scientific perspective, the cross-sectional design of the data collection in studies 2 and 3 makes it difficult to infer causality from neurosensitivity to organizational citizenship behavior and task performance. However, as stated by Chiaburu, Oh, Berry, Li, and Gardner, "it is unlikely though for […] behaviors […] to cause personality traits, which are relatively stable and heritable" (2011: 1151). In addition, cross-sectional designs cannot be used to analyze behaviors over time. Therefore, longitudinal designs are recommended for future management studies on neurosensitivity. Moreover, it would be very valuable to explore

whether and/or how changes in sensitivity type, and especially in vantage sensitivity, affect business-relevant behaviors. In this context, one of the most valuable examinations could be an experimental intervention that fosters the vantage sensitivity of the intervention group (e.g., through mindfulness-enhancing programs and techniques such as meditation), facilitating a comparison of whether business-relevant behaviors, such as job performance, significantly increase in the intervention group compared to the control group.

The main limitation of the present study is likely to lie in the main source of evidence, namely current sensitivity research. As outlined in the overall introduction, the Highly Sensitive Person Scale (HSPS) is strongly biased toward vulnerable sensitivity (Evans & Rothbart, 2008). This leads to at least two major challenges for the present dissertation. On the one hand, study 1 is based largely on empirical evidence of sensitivity research, which – again – is biased toward vulnerable sensitivity. Therefore, current sensitivity literature is likely to underestimate the potential of neurosensitivity and vantage sensitivity in particular. On the other hand, as Pluess' (2015) categorization into vantage and vulnerable sensitivity is not based on the HSPS items, my operationalization of two sub-factors of the HSPS in studies 2 and 3 will need to be further explored in future research. Despite these limitations, the empirical evidence regarding vantage and vulnerable sensitivity in this dissertation is strongly in line with Pluess' (2015) conceptual-theoretical understanding of these sensitivity types, and, thus, marks an important first step in the right direction.

A crucial future research question is whether or how vantage sensitivity can be promoted in adulthood. Based on Pluess (2015), vantage sensitivity is shaped by childhood experiences. However, in their introduction of vantage sensitivity into psychological research, Pluess and Belsky concluded that: "A final and related point concerns whether vantage sensitivity itself can be directly influenced through intervention. Evidence cited earlier suggesting that some vantage-sensitivity factors are shaped by early environmental influences certainly suggests that

this might be possible. If so, efficacy of existing psychological interventions and services might be increased drastically by interventions that target the promotion of vantage sensitivity" (2013: 912). Accordingly, it seems highly likely that vantage sensitivity can still be promoted in adulthood by means of methods such as mindfulness-enhancing techniques like meditation (cf. Soons et al., 2010). This would be highly relevant not only from a psychological perspective, but also from a management perspective. Because the present dissertation shows in studies 2 and 3 that vantage sensitivity is positively related to job performance (i.e., OCBI and task performance), the promotion of vantage sensitivity could be highly relevant for human resource management.

In current sensitivity research and in this dissertation, neurosensitivity is defined as "the ability to register and process environmental stimuli"(as cited in Greven et al., 2019: 288). In turn, neurosensitivity is normally distributed (Lionetti et al., 2018). Therefore, almost by definition, it is highly likely that there are environmental stimuli that only highly sensitive persons are able to register and process. Consequently, it is likely that environmental stimuli exist that have not (yet) been generally acknowledged, such as energy fields or inspiration from the spiritual world. Popular scientific books often emphasize how important it is that highly sensitive persons' potential be realized. It can be expected, for instance, that those individuals with greater capacity to register and process environmental stimuli will not be able to fully realize their potential, as long as they do not consciously and fully use their perceptive ability – including environmental stimuli, which have not (yet) generally acknowledged. In this context, I see great opportunities for future research into the metaphysical sphere, which might be conducted largely by neuroscientific methods. Such metaphysical findings could be highly relevant not only for highly sensitive persons, but also from a socioeconomic perspective, since it can be expected that substantial value creation potential lies hidden in the metaphysical world.

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Declaration of Authorship

“Ich erkläre hiermit, dass ich diese Arbeit selbständig verfasst und keine anderen als die angegebenen Quellen benutzt habe. Alle Koautorenschaften sowie alle Stellen, die wörtlich oder sinngemäss aus Quellen entnommen wurden, habe ich als solche gekennzeichnet. Mir ist bekannt, dass andernfalls der Senat gemäss Artikel 36 Absatz 1 Buchstabe o des Gesetzes vom 5. September 1996 über die Universität zum Entzug des aufgrund dieser Arbeit verliehenen Titels berechtigt ist.“

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